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SEED REPORT

1915

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Chief Chemist

CHARLES E. PATTON, Secretary of Agriculture.

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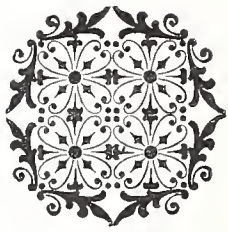
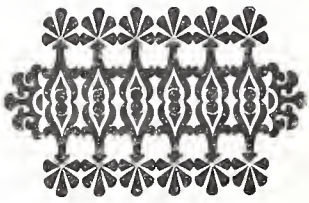


TABLE OF CONTENTS.

	Page.
Letter of transmittal,	3
Introduction,	5
Standards of purity,	7
Foreign or noxious weed seeds,	7
Illustrations showing noxious and common weed seeds,	9
Seed cleaning,	14
Special samples tested for purity,	14
Table showing results of tests on special samples,	16
Results of inspection,	20
Table showing results of tests on official samples,	23
Table showing average purity of official samples,	31
Table showing number of times foreign seeds occurred in official samples,	32



LETTER OF TRANSMITTAL.

DEPARTMENT OF AGRICULTURE.
BUREAU OF CHEMISTRY.

Hon. Charles E. Patton,
Secretary of Agriculture,
Harrisburg, Pa.

Harrisburg, Pa., Feb. 28, 1916.

Dear Sir: I have the honor to transmit herewith for your approval a report of the work performed by the Seed Laboratory of this Bureau during 1915 in testing Seeds for purity as provided for by the Seed Law. Five (5) plates illustrating one hundred noxious weed seeds found present in agricultural seeds were loaned the Department by the Seed Laboratory of the United States Department of Agriculture, and are included in this Report, for the purpose of assisting those interested in the identification of these foreign seeds.

It is recommended that this report be published in Bulletin form for distribution.

Respectfully yours,

JAMES W. KELLOGG,
Chief Chemist.

BULLETIN NO. 276

SEED REPORT

1915

JAMES W. KELLOGG HOWARD E. GENSLER

INTRODUCTION.

The work performed during the year in testing seeds for purity under the provisions of the seed law has been conducted in a similar manner as during the previous year and as shown in the Seed Report for 1914, Bulletin No. 258. The samples of seeds secured from dealers by Special Agents, and those submitted as special samples, were all examined by the Seed Analyst who, during a busy part of the season, was assisted by Ruth I. Mentzer. The testing of seeds for purity has been accomplished in a laboratory of this bureau especially arranged for this purpose. Since moving the laboratories to new quarters, better working facilities because of more light and space than was afforded in the former laboratories have greatly assisted in the work.

In order that the Department might cooperate with the seed inspection work being done in other States and by the U. S. Department of Agriculture, our Seed Analyst, representing the Department, attended the annual meeting of the Association of Official Seed Analysts of North America held in Columbus, Ohio, December 28th and 29th, 1915. Valuable information was secured as a result of the discussions of the various phases of the seed work. The results in connection with the co-operative work in testing for purity standard samples of seed, obtained by our Seed Analyst, were presented and showed that the work being done by the Department is carefully and accurately performed. The methods used in seed testing are uniform and are those approved by the above mentioned Association of Seed Analysts. The percentages of "Pure Seed," "Foreign Seed" and "Inert

Matter" are determined by weight as provided by the law. Pure seed including seeds of the sample in question, foreign seeds including all other seeds, noxious or which should not be present in the sample under examination and inert matter, all material other than pure seed or foreign seed and representing the dirt, stones, broken stems and less than halves of the seed being tested or of the foreign seeds.

In reporting the percentage of "Foreign Seed" when found present in large amounts, only those seeds are named which make up the greater portion of the foreign seeds and which are the principal cause of reducing the standard of purity. To name each kind of foreign seed present, including those which occur in relatively small amounts as well as those which make up the major part of the total percentage, would be misleading and of no particular value for the reason that these seeds which may be present in small amounts and make up only a small proportion of the whole amount are not the true cause of reducing the standard and may include many kinds. To include the names of and number of seeds present only in traces, therefore, would seem to indicate that these seeds were the cause of the trouble rather than one or two kinds which make up the greater part of the foreign seed which, of course, would be incorrect and confusing.

The official samples of seeds and the larger proportion of the special samples were received during the first part of the year, previous to the season of sowing. During the year seedsmen and consumers sent 235 special samples of seeds to be tested for purity, together with the fee of 25 cents which is charged, and, as speedily as possible, reports of the results secured were returned together with receipts for fees. These fees were paid to the State Treasurer from time to time, as required. The results secured on these special samples are shown by number only in Table No. 1 and are included in this report for the purpose of giving additional information as to the quality of seeds being grown and sold in the State. In many cases the samples were sent in to be tested to determine whether or not they should be cleaned to meet the standards of purity before being offered for sale. The results obtained showed that in a number of cases cleaning was necessary. As such samples did not represent the quality of the seeds finally offered for sale, the names of the parties submitting the same are not included in the Table.

The number of official samples of seeds secured by Special Agents from seedsmen and seed dealers in various localities of the State was 221. This number is possibly not as great as it should be to fairly represent the quality of the seeds being sold but, owing to the limited facilities for carrying on this work, a larger number of samples could not be examined. The purity tests on these samples, however, will indicate that the standards of purity established by the seed law are

complied with in most cases. It will be noted by referring to Table No. III, showing the results of inspection, that the number of samples which failed to meet the standards of purity was small. The results secured, together with the names or kind of seeds, names and addresses of seedmen and dealers from whom the samples were secured, are shown in this Table. As soon as possible after these tests were completed, reports were sent to the dealers from whom they were secured and the seedsmen or growers from whom the original purchase was made also received a report.

STANDARDS OF PURITY.

In order that the standards of purity established by the seed law may be at hand for ready reference, they are republished in this report ranging from 75% to 97% as follows:

Medium Red Clover,	Trifolium pratense,	97 %.
Mammoth Red Clover,	Trifolium pratense,	97 %.
Crimson Clover,	Trifolium incarnatum,	97 %.
Alfalfa,	Medicago sativa,	97 %.
Timothy-Grass,	Phleum pratense,	97 %.
Barley,	Hordeum vulgare,	97 %.
Spelt,	Triticum aestivum Spelta,	97 %.
Wheat,	Triticum aestivum,	97 %.
Buckwheat,	Fagapyrum Fagopyrum,	97 %.
Oats,	Avena sativa,	97 %.
Rye,	Secale cereale,	97 %.
Alsike Clover,	Trifolium hybridum,	95 %.
Perennial Rye-Grass,	Lolium perenne,	95 %.
German Millet,	Chaetochloa italica,	95 %.
Hungarian Millet,	Chaetochloa italica,	95 %.
White Clover,	Trifolium repens,	90 %.
Redtop Grass, (solid or hulled).	Agrostis alba,	85 %.
Canadian Blue-Grass,	Poa compressa,	75 %.
Orchard Grass,	Dactylis glomerata,	75 %.
Kentucky Blue-Grass,	Poa pratensis,	75 %.
Redtop (unhulled),	Agrostis alba,	75 %.

Dodder and Canada thistle are prohibited from being present in excess of 1 seed in 3,000.

FOREIGN OR NOXIOUS WEED SEEDS.

Foreign and noxious weed seeds are frequently present in the various kinds of seeds in amounts sufficient to materially reduce the quality of these seeds and when sown propagate pernicious weeds which cause considerable damage to the crop. By sowing clean seeds, therefore, this danger can be largely overcome and the need of sowing clean seeds should be apparant to all. No effort should be spared

to make sure that the seeds purchased for sowing are of the highest quality in respect to freedom from noxious seeds as can be had. For a small fee the Department can advise any citizen of the State interested in this work, as to the character of the seed offered for sale, by testing special samples. If it is found that the sample of seed submitted for examination be impure, the shipment which it represents can be returned and acceptance refused. Those familiar with the general appearance of Agricultural seeds can easily detect the presence of foreign seeds, especially if they are present in sufficient amounts to substantially reduce the standard of seeds under examination. Unless one has had considerable experience and training, however, it is difficult to identify and separate these noxious seeds, as this work requires a trained Analyst. However, from illustrations of these weed seeds, by becoming familiar with their general appearance, those who purchase impure seeds will be able to identify the more common ones which are usually found present in farm seeds. Such illustrations, by giving the description of a seed, will often enable one to identify the plant from which it is obtained. The Botanist of the Seed Laboratory of the U. S. Department of Agriculture has permitted the Department to use and include in this report, five plates prepared by Prof. F. H. Hillman showing the characteristic appearance of 100 kinds of noxious and common weed seeds found in farm seeds. These illustrations which follow include a letter under each kind of seed and below each plate or figure will be found the corresponding common names or synonyms, botanical names and a brief description of each which has been prepared.

PLATE 1.—NOXIOUS WEED SEEDS FOUND IN FARM SEEDS.

(Loaned by Bureau of Plant Industry, U. S. Dept. of Ag.)

Common and Botanical Names. 1=Color. 2=Appearance Under Low-power Lens.

a. Sandbur, Cenchrus tribuloides, (1) Light brown or straw, (2) Dull.
b. Wild oat, Avena fatua, (1) Straw or brown, (2) Smooth.
c. Chess or cheat, Bromus secalinus, (1) Straw, (2) Somewhat wrinkled.
d. Darnel, Lolium temulentum, (1) Straw or brown, (2) Smooth; sometimes shiny.
e. Quack-grass, Agropyron repens, (1) Light yellow, sometimes greenish, (2) Dull.
f. Curled dock, Rumex crispus, (1) Reddish brown, (2) Smooth and shining.
g. Black bindweed, Polygonum convolvulus, (1) Brown, straw or greenish in coat; out of coat, black and (2) somewhat shiny.
h. Russian thistle, Salsola tragus, (1) Grey or brown.
i. Russian thistle, Salsola tragus, (1) Grey or brown.
j. White campion, Lychnis alba, (1) Grey, yellowish grey or reddish grey. (2) Fine spines or tubercles.
k. Bladder campion, Silene vulgaris, (1) Brown or approaching black. (2) Fine spines or tubercles.
l. Night-flowering catchfly, Silene noctiflora, (1) Similar to that of "j," (2) Fine spines or tubercles.
m. Cow cockle, Vaccaria vaccaria, (1) Black, (2) Faintly warted.
n. Pennycress, Thlaspi arvense, (1) Reddish brown, (2) concentric shining ridges.
o. Field peppergrass, Lepidium campestre, (1) Reddish Brown, (2) Dull or finely granular.
p. Large-fruited false flax, Camelina sativa, (1) Light yellow or orange, (2) Waxy.
q. Small-fruited false flax, Camelina microcarpa, (1) Dark red, (2) Dull; finely granular.
r. Ball mustard, Neslia paniculata, (1) Straw colored or brown, (2) Network of ridges.
s. Black mustard, Brassica nigra, (1) Reddish or dark brown, (2) Network of ridges.
t. Charlock, Brassica arvensis, (1) Black or reddish brown, (2) Dull; grey lustre.

PLATE 2.—NOXIOUS WEED SEEDS FOUND IN FARM SEEDS.

(Loaned by Bureau of Plant Industry, U. S. Dept. of Ag.)

Common and Botanical Names. 1=Color. 2=Appearance Under Low-power Lens.

a. Indian mustard, Brassica juncea, (1) Reddish brown, (2) Network of ridges.
b. Hare's-ear mustard, Conringia orientalis, (1) Brown or reddish brown, (2) Granular.
c. Tumbling mustard, Sisymbrium altissimum, (1) Orange or dull brown, (2) Waxy.
d. Wild carrot, Daucus carota, (1) Light brown, (2) Ridges with spines.
e. Field bindweed, Convolvulus arvensis, (1) Dull brown, (2) Roughened.
f. Flax dodder, Cuscuta epilinum, (1) Grey or browinsh grey, (2) Granular.
g. Clover dodder, Cuscuta epithymum, (1) Grey or brown, (2) Granular.
h. Small-seeded alfalfa dodder, Cuscuta planiflora, (1) Yellowish, greenish or purplish, (2) Roughened or granular.
i. Field dodder, Cuscuta arvensis, (1) Orange or yellowish brown, (2) Dull or granular.
j. Large-seeded alfalfa dodder, Cuscuta indecora, (1) Grey, greenish or brown, (2) Roughened or granular.
k. Corn gromwell, Lithospermum arvense, (1) Grey or brown, (2) Roughened or warty.
l. Rugel's plaintain, Plantago Rugelii, (1) Black, (2) Dull with minute glistening points.
m. Buckhorn plaintain, Plantago lanceolata, (1) Brown or amber, (2) Shiny on concave side; dull in groove.
n. Ragweed, Ambrosia artemisiaefolia, (1) Light grey or brown, (2) Irregularly ridged.
o. Gum-plant, Grindelia squarrosa, (1) Whitish or straw, (2) Vertically wrinkled.
p. Sunflower, Helianthus annuus, (1) Grey or brown with black or dark mottlings, (2) Fine verticle wrinkles.
q. Oxeye daisy, Chrysanthemum leucanthemum, (1) Brown or black with ten white vertical ribs.
r. Canada thistle, Carduus arvensis, (1) Light or dark bronze, (2) Smooth.
s. Bull thistle, Carduus lanceolatus, (1) Light grey or brown with darker vertical strippings, (2) Dull.
t. Chicory, Cichorium intybus, (1) Brown or straw with dark spots, (1) Vertically wrinkled; finely webbed.

PLATE 3.—COMMON WEED SEEDS FOUND IN FARM SEEDS.

(Loaned by Bureau of Plant Industry, U. S. Dept. of Ag.)

Common and Botanical Names. 1=Color. 2=Appearance Under Low-power Lens.

a. Crab-grass, Syntherisma sanguinalis. (1) Straw green, brown or purplish.
b. Witch-grass, Panicum capillare, (1) Straw or olive green, (2) Shining.
c. Yellow foxtail, Chaetochloa glauca, (1) Free from chaff, light or dark green, (2) Ridged crosswise.
d. Green foxtail, Chaetochloa viridis, (1) Free from chaff; straw or brown, sometimes mottled, (2) Ridged crosswise.
e. Velvet grass, Holcus lanatus, (1) chaff, straw, (2) Having fine, stiffish hairs.
f. Soft chess, Bromus hordeaceus, (1) Straw, (2) Usually wrinkled.
g. Sedge, Carex sp., (1) Free from chaffy hull, light brown, (2) Smooth.
h. Sorrel, Rumex acetosella, (1) Free from hull, reddish brown, (2) Smooth and shining.
i. Knotwood, Polygnum aviculare, (1) Free from covering, reddish brown, (2) Dull.
j. Pale smartweed, Polygonum lapathifolium, (1) Chestnut brown, (2) Shining.
k. Lady's-thumb, Polygonum persicaria, (1) Black or reddish black, (2) Shining.
l. Lamb's-quarters, Chenopodium album, (1) Dark brown or black, (2) Shining.
m. Wild saltbush, Atriplex truncata, (1) Straw, (2) Veined into an imperfect network.
n. Rough pigweed, Amaranthus retroflexus, (1) Black, (2) Highly polished.
o. Spreading amaranth, Amaranthus blitoides, (1) Black, (2) Highly polished.
p. Spergula arvensis, Spurry, (1) Dull black, encircled by light colored rim, (2) Finely warted.
q. Chickweed, Alsine graminea, (1) Reddish brown or brown, (2) Crinkled appearance, caused by fine ridges.
r. Chickweed, Alsine media, (1) Reddish brown or brown, (2) Stitched appearance, caused by tubercles.
s. Mouse-ear chickweed, Cerastium vulgatum, (1) Reddish brown, (2) Tubercled.
t. Forked catchfly, Silene dichotoma, (1) Reddish brown, (2) fine spines or tubercles.

PLATE 4.—COMMON WEED SEEDS FOUND IN FARM SEEDS.

(Loaned by Bureau of Plant Industry, U. S. Dept. of Ag.)

Common and Botanical Names. 1=Color. 2=Appearance Under Low-power Lens.

a. Creeping buttercup, Ranunculus repens, (1) Brown or reddish-brown, (2) Dull.
b. Peppergrass, Lepidium virginicum, (1) Reddish yellow with papery rim, (2) Waxy or dull.
c. Shepherd's-purse, Bursa bursa-pastoris, (1) Reddish yellow, (2) Waxy or dull.
d. Cinquefoil, Potentilla monspeliensis, (1) Straw or brown, (2) With curved, forked ridges.
e. Hop clover, Trifolium procumbens, (1) Yellowish, (2) Shining.
f. Yellow trefoil, Medicago lupulina, (1) Yellowish brown or tinged with green, (2) Smooth.
g. Bird's-foot trefoil, Lotus corniculatus, (1) Brown and mottled, (2) Smooth.
h. Wild Geranium (cut-leaved crane's bill), Geranium dissectum, (1) and (2) Brown with light network.
i. Wild Geranium (Dove's foot crane's bill), Geranium molle, (1) and (2) Often with a brown, ridged hull.
j. Wild Geranium (Small-flowered crane's bill), Geranium pusillum (1) Reddish brown, (2) Smooth.
k. Alfilaria, Erodium cicutarium, (1) Seeds proper, brown, (2) Smooth.
l. Spurge, Euphorbia nutans, (1) Steel-gray or brown, (2) Ridged into four angles; faces wrinkled.
m. Spiny sida, Sida spinosa, (1) Brown, (2) Dull.
n. Evening primrose, Onagra biennis, (1) Reddish brown, (2) Presenting wrinkled or shrivelled appearance.
o. Red pimpernel, Anagallis arvensis, (1) Reddish brown, (2) Finely roughened.
p. Sticktight, Lappula lappula, (1) Grey or brown, (2) With whitish warts and brown, barbed, prickles.
q. Forget-me-not, Myosotis arvensis, (1) Black, (2) Shining.
r. Vervain, Verbena officinalis, (1) Reddish or dark brown, (2) Veined on one side, angled on other.
s. White Vervain, Verbena urticaefolia, (1) Reddish or dark brown, (2) Veined on one side, angled on other.
t. Blue Vervain, Verbena hastata, (1) Reddish or dark brown, (2) Veined on one side, angled on other.

PLATE 5.—COMMON WEED SEEDS FOUND IN FARM SEEDS.

(Loaned by Bureau of Plant Industry, U. S. Dept. of Ag.)

Common and Botanical Names. 1=Color. 2=Appearance Under Low-power Lens.

a. Catmint, Nepeta cataria, (1) Reddish or dark brown, (2) Smooth and dull.
b. Healall, Prunella vulgaris, (1) Light to dark brown, (2) Slightly roughened, having a diffused lustre.
c. Rough-leaved toad flax, Elatinoides spuria, (1) Light brown, (2) Wrinkled.
d Plantain, Plantago major, (1) Greenish, brown or black, (2) Roughened by slender wavy lines.
e. Bracted plaintain, Plantago aristata, (1) Light or dark brown, (2) Dull.
f. Dwarf plaintain, Plantago virginica, (1) Light brown.
g. Blue field madder, Sherardia arvensis, (1) Dull brown, (2) Witb small white hairs.
b. Cleavers, Galium aparine. (1) Grey or brown. (2) With hair bearing tubercles.
i. Wild corn salad, Valerianella morrisonii, (1) Brown. (2) Quite smooth.
j. Wild corn salad, Valerianella sp., (1) Brown. (2) Somewhat hairy.
k. Poverty weed, Iva axillaris, (1) Rusty brown, (2) Somewbat roughened.
l. Brown-eyed Susan, Rudbeckia birta, (1) Black, (2) Having fine vertical ridges.
m. Mayweed, Antbemis cotula. (1) Straw or brown, (2) Having warted ridges.
n. Field camomile, Anthemis arvensis, (1) Wbitish, light or dark brown, (2) Vertically grooved.
o. Scentless camomile, Matricaria inodora, (1) Black, (2) Rougb and ribbed.
p. Cornflower, Centaurea cyanus, (1) Body of seed, bluish grey, (2) Smooth. Brush of bristles, light reddish yellow.
q. Cat's-ear, Hypocbaeris radicata, (1) Body of seed, reddisb brown and (2) rough.
r. Oxtongue, Picris echioides, (1) Reddish yellow, (2) Darker transverse lines.
s. Hawkweed picris, Picris bieracioides, (1) Reddisb brown. (2) Transverse ridges.
t. Orange picris, Hieracium aurantiacum, (1) Black, (2) Ridged lengthwise; bearing tuft of white bristles.

SEED CLEANING.

When a lot of seed is found to be contaminated with foreign seeds, or if after samples have been submitted to the Department for purity tests, it is found that the seed under examination is below the standard of purity, it is necessary that cleaning be resorted to in order that not only the standards of purity be met, but that the propagation of weeds be reduced as much as possible by the sowing of clean seeds. No effort should be spared under such conditions to have the impure seed cleaned. Many of the large seed houses have seed cleaning machines to which seed can be shipped for cleaning, the usual charge being 25 cents per bushel. There are a number of seed cleaning machines on the market which can be purchased for a reasonable amount, and it might be advisable for some of the larger seed growers to install their own cleaning machines. One of these seed cleaners, which appears to give splendid satisfaction and which is used by many of the seedsmen, can be purchased for from $125 to $350, according to size required. The smaller sizes, which cost $135, have an hourly capacity of 35 to 60 bushels, can be easily installed and do not require much power. Where it is inadvisable or too expensive to ship seed for cleaning to the nearest establishment having a seed cleaning machine, it is recommended by the Department that several seedsmen or farmers club together and purchase and have set up a seed cleaner at some centrally located point where the seed for the neighborhood could be easily shipped and cleaned. The Department is not in a position to recommend any one form or make of seed cleaner, however, by inquiring of those who have such machines in operation, information can be secured by which arrangements could be made to purchase and install these machines.

SPECIAL SAMPLES TESTED FOR PURITY.

In order that the necessity for cleaning seeds and the character of the seed being sold can be determined, the law makes it possible for any citizen of Pennsylvania to have samples tested for purity by the Department for the fee of 25 cents for each sample. These samples submitted for testing should be carefully secured and fairly represent the lot of seed being sampled as otherwise the results of the tests secured will be inaccurate and will not show the true character of the lot under examination. It is, therefore, necessary that when special samples are sent to the Department, they be carefully secured so that the results of the tests will not be misleading. If the seed is in sacks, bags or in bulk, the samples should be taken from several different places in these containers and thoroughly mixed and from 3 to 4 ounces placed in a mailing or special seed envelope and sent to

the Department. The name of the seed and the name and address of the sender should be plainly written on the package and a letter also mailed advising that the sample or samples are being sent and both addressed to the Bureau of Chemistry, Pennsylvania Department of Agriculture. As soon as possible after receipt of samples and fees, tests will be made and a report returned to the senders showing the percentages of pure seed, foreign seed, inert matter, the condition with respect to freedom from dodder and Canada thistle and a receipt for the fees. When sending seeds to be tested, therefore, the following directions should be carefully noted:

Amount of Sample:—3 to 4 ounces, carefully secured and representative of whole lot.

Envelopes:—Should be used and carefully sealed.

Address:—Bureau of Chemistry, Pennsylvania Department of Agriculture, Box R, Harrisburg, Pa. The name of seed and address of sender should be also included.

Charge for Purity Test:—25 cents is the fee charged and it should be submitted with sample in the form of a certified check, money order or cash. If cash is sent for one or two samples, it may be inserted in the sample of seed with safety, if the envelope is carefully sealed.

The following Table (No. I) shows the results obtained upon the 235 special samples of seeds which were sent to the Department to be tested during 1915. These results are included in this report for the purpose of furnishing additional information in regard to the character of the seed being grown and purchased in the State. As many of these samples were submitted for the purpose of determining whether the lot of seed represented should be re-cleaned and did not represent the final quality of seed being sold, the names of the senders are not included. It will be noted that the average results were above the standards and in the majority of cases the samples examined considerably exceeded the requirements. The various kinds of seeds are grouped together and shown in the table by the Analyst's number in the order they were received and also in the order named in the law.

TABLE I—RESULTS OF TESTS ON SPECIAL SAMPLES.

Analyst No.	Name of Seed.	Pure seed.	Foreign seed.	Inert matter.	Seeds of dodder.	Seeds of Canada thistle.
B 377	Red clover,	95.91	2.04	2.05	None.	None.
B 378	Red clover,	98.78	0.18	1.04	None.	None.
B 379	Red clover,	97.80	0.79	1.41	None.	None.
B 380	Red clover,	95.70	1.05	3.25	None.	None.
B 381	Red clover,	97.75	0.75	1.50	None.	None.
B 382	Red clover,	94.46	1.94	3.60	None.	None.
B 383	Red clover,	98.60	1.27	0.13	None.	None.
B 384	Red clover,	99.06	0.56	0.38	None.	None.
B 386	Red clover,	99.18	0.65	0.17	None.	None.
B 387	Red clover,	97.05	2.74	0.21	None.	None.
B 388	Red clover,	96.93	1.51	1.56	None.	None.
B 389	Red clover,	98.88	0.67	0.45	None.	None.
B 390	Red clover,	97.35	1.03	1.62	None.	None.
B 391	Red clover,	96.44	1.84	1.72	None.	None.
B 392	Red clover,	97.19	1.93	0.88	None.	None.
B 393	Red clover,	96.20	3.22	0.58	None.	None.
B 394	Red clover,	95 94	3.38	0.68	None.	None.
B 395	Red clover,	98.75	1.12	0.13	1–2500	None.
B 397	Red clover,	96.66	0.99	2.35	None.	None.
B 398	Red clover,	99.37	0.30	0.33	None.	None.
B 399	Red clover,	88.64	8.48	2.88	None.	None.
B 400	Red clover,	99.89	0.09	0.02	None.	None.
B 401	Red clover,	98.75	0.65	0.60	None.	None.
B 402	Red clover,	98.82	1.15	0.03	None.	None.
B 403	Red clover,	97.58	2.13	0.29	None.	None.
B 404	Red clover,	97.40	2.15	0.45	None.	None.
B 405	Red clover,	98.91	0.54	0.55	None.	None.
B 406	Red clover,	97.79	2.07	0.14	None.	None.
B 407	Red clover,	98.56	0.94	0.50	None.	None.
B 408	Red clover,	99.38	0.39	0.23	None.	None.
B 409	Red clover,	89.34	4.27	6.39	None.	None.
B 410	Red clover,	95.27	2.03	2.70	None.	None.
B 411	Red clover,	97.89	1.74	0.37	None.	None.
B 414	Red clover,	98.67	1.10	0.23	None.	None.
B 415	Red clover,	99.02	0.28	0.70	None.	None.
B 416	Red clover,	98.87	0.05	1.08	None.	None.
B 417	Red clover,	93.68	4.26	2.06	None.	None.
B 418	Red clover,	80.54	19.10	0.36	None.	None.
B 419	Red clover,	99.35	0.27	0.38	None.	None.
B 420	Red clover,	99.50	0.41	0.09	None.	None.
B 421	Red clover,	98.32	0.96	0.72	None.	None.
B 425	Red clover,	99.69	0.17	0.14	None.	None.
B 426	Red clover,	99.47	0.50	0.03	None.	None.
B 427	Red clover,	99.74	0.14	0.12	None.	None.
B 428	Red clover,	94.60	5.16	0.24	None.	None.
B 429	Red clover,	99.02	0.30	0.68	None.	None.
B 430	Red clover,	90.13	5.31	4.56	None.	None.
B 431	Red clover,	98.45	1.14	0.41	None.	None.
B 432	Red clover,	98.68	0.26	0.06	None.	None.
B 436	Red clover,	90.02	8.62	1.36	None.	None.
B 437	Red clover,	99.03	0.54	0.43	None.	None.
B 438	Red clover,	98.64	0.79	0.57	None.	None.
B 439	Red clover,	91.22	7.60	1.18	None.	None.
B 440	Red clover,	97.21	2.61	0.18	None.	None.
B 446	Red clover,	99.77	0.04	0.19	None.	None.
B 447	Red clover,	98.76	0.88	0.36	None.	None.
B 450	Red clover,	99.43	0.16	0.41	None.	None.
B 451	Red clover,	97.78	0.44	1.78	1–50,000	None.
B 452	Red clover,	99.09	0.29	0.62	None.	None.
B 453	Red clover,	98.69	0.82	0.49	None.	None.
B 454	Red clover,	98.30	1.19	0.51	None.	None.
B 456	Red clover,	98.42	1.46	0.12	None.	None.
B 457	Red clover,	96.85	2.69	0.46	None.	None.
B 458	Red clover,	89.90	8.22	1.88	None.	None.
B 459	Red clover,	98.86	1.01	0.13	None.	None.
B 461	Red clover,	99.38	0.51	0.11	None.	None.
B 462	Red clover,	96.71	2.34	0.96	None.	None.
B 463	Red clover,	98.71	0.70	0.59	None.	None.
B 464	Red clover,	98.39	1.10	0.51	None.	None.
B 465	Red clover,	98.85	0.54	0.61	None.	None.
B 466	Red clover,	99.36	0.53	0.11	None.	None.
B 467	Red clover,	99.88	0.02	0.10	None.	None.
B 468	Red clover,	99.64	0.32	0.04	None.	None.
B 469	Red clover,	97.17	2.24	0.59	None.	None.
B 470	Red clover,	98.63	0.62	0.75	None.	None.
B 471	Red clover,	99.93	0.02	0.05	None.	None.
B 472	Red clover,	93.08	3.83	3.09	None.	None.
B 474	Red clover,	97.66	0.53	1.81	None.	None.
B 475	Red clover,	96.34	3.04	0.62	None.	None.

TABLE I—RESULTS OF TESTS ON SPECIAL SAMPLES—Continued.

Analyst No.	Name of Seed.	Pure seed.	Foreign seed.	Inert matter.	Seeds of dodder.	Seeds of Canada thistle.
B 476	Red clover,	98.27	1.21	0.52	None.	None.
B 477	Red clover,	99.46	0.19	0.35	None.	None.
B 478	Red clover,	96.33	2.78	0.89	None.	None.
B 479	Red clover,	93.36	5.62	1.02	None.	None.
B 480	Red clover,	94.47	4.84	0.69	None.	None.
B 482	Red clover,	97.91	1.93	0.16	None.	None.
B 485	Red clover,	95.78	3.29	0.93	None.	None.
B 486	Red clover,	96.04	3.70	0.26	None.	None.
B 487	Red clover,	99.33	0.28	0.39	None.	None.
B 488	Red clover,	96.91	2.04	1.05	None.	None.
B 489	Red clover,	98.49	0.90	0.61	None.	None.
B 490	Red clover,	97.25	2.26	0.49	None.	None.
B 491	Red clover,	99.91	0.00	0.09	None.	None.
B 492	Red clover,	98.06	1.39	0.55	None.	None.
B 493	Red clover,	98.00	1.53	0.47	None.	None.
B 494	Red clover,	94.27	4.25	1.48	None.	None.
B 495	Red clover,	98.78	0.81	0.41	None.	None.
B 496	Red clover,	96.02	3.52	0.46	None.	None.
B 497	Red clover,	99.75	0.16	0.09	None.	None.
B 499	Red clover,	99.10	0.52	0.38	None.	None.
B 502	Red clover,	99.31	0.55	0.14	None.	None.
B 503	Red clover,	95.83	3.70	0.42	None.	None.
B 504	Red clover,	99.51	0.38	0.11	None.	None.
B 505	Red clover,	97.10	2.07	0.83	None.	None.
B 506	Red clover,	99.50	0.43	0.07	None.	None.
B 507	Red clover,	94.82	3.24	1.94	None.	None.
B 508	Red clover,	99.24	0.71	0.05	None.	None.
B 512	Red clover,	98.15	0.86	0.99	1-272	None.
B 513	Red clover,	95.04	4.40	0.56	None.	None.
B 514	Red clover,	96.89	1.30	1.81	None.	None.
B 516	Red clover,	94.65	2.83	2.52	None.	None.
B 517	Red clover,	97.72	1.25	1.03	None.	None.
B 518	Red clover,	98.82	0.99	0.19	None.	None.
B 519	Red clover,	98.78	0.65	0.57	None.	None.
B 520	Red clover,	98.01	1.30	0.69	None.	None.
B 521	Red clover,	99.61	0.12	0.27	None.	None.
B 522	Red clover,	96.40	2.82	0.78	None.	None.
B 523	Red clover,	99.06	0.65	0.29	None.	None.
B 524	Red clover,	87.35	5.10	7.55	None.	None.
B 525	Red clover,	95.15	4.56	0.29	None.	None.
B 527	Red clover,	99.13	0.79	0.08	None.	None.
B 528	Red clover,	94.75	3.89	1.36	None.	None.
B 529	Red clover,	95.72	3.52	0.76	None.	None.
B 530	Red clover,	95.59	4.13	0.28	None.	None.
B 531	Red clover,	90.30	8.87	0.83	None.	None.
B 532	Red clover,	96.64	2.58	0.78	None.	None.
B 533	Red clover,	96.87	2.93	0.20	None.	None.
B 534	Red clover,	99.69	0.12	0.19	None.	None.
B 535	Red clover,	99.42	0.12	0.46	None.	None.
B 536	Red clover,	97.54	1.80	0.66	None.	None.
B 537	Red clover,	96.62	2.88	0.50	None.	None.
B 538	Red clover,	94.08	3.52	2.40	None.	None.
B 539	Red clover,	98.75	0.62	0.63	None.	None.
B 540	Red clover,	97.15	2.24	0.61	None.	None.
B 541	Red clover.	99.37	0.25	0.38	None.	None.
B 542	Red clover,	99.19	0.61	0.20	None.	None.
B 543	Red clover,	93.94	2.84	3.22	None.	None.
B 544	Red clover,	98.98	0.18	0.84	None.	None.
B 545	Red clover,	99.06	0.34	0.60	None.	None.
B 546	Red clover,	92.50	6.12	1.38	None.	None.
B 547	Red clover,	93.36	5.61	1.03	None.	None.
B 548	Red clover,	88.39	10.14	1.47	None.	None.
B 549	Red clover,	97.43	2.17	0.40	None.	None.
B 550	Red clover,	97.71	1.81	0.48	None.	None.
B 551	Red clover,	96.89	2.76	0.35	None.	None.
B 552	Red clover,	97.56	1.43	1.01	None.	None.
B 553	Red clover,	98.25	1.42	0.33	None.	None.
B 554	Red clover,	93.64	1.80	4.56	None.	None.
B 555	Red clover,	97.96	1.74	0.30	None.	None.
B 556	Red clover,	86.76	8.99	4.25	None.	None.
B 557	Red clover,	98.32	0.56	1.12	None.	None.
B 558	Red clover,	82.51	14.73	2.76	None.	None.
B 559	Red clover,	98.15	0.61	1.24	None.	None.
B 560	Red clover,	97.32	2.58	0.10	None.	None.
B 561	Red clover,	98.75	1.08	0.17	None.	None.
B 562	Red clover,	99.22	0.71	0.07	None.	None.
B 563	Red clover,	99.05	0.88	0.07	None.	None.
B 564	Red clover,	89.16	10.41	0.42	None.	None.
B 566	Red clover,	99.25	0.22	0.53	None.	None.

TABLE I—RESULTS OF TESTS ON SPECIAL SAMPLES—Continued.

Analyst No.	Name of Seed.	Pure seed.	Foreign seed.	Inert matter.	Seeds of dodder.	Seeds of Canada thistle.
B 567	Red clover,	94.73	4.25	1.02	None.	None.
B 568	Red clover,	98.72	0.72	0.56	None.	None.
B 569	Red clover,	98.22	1.39	0.39	None.	None.
B 570	Red clover,	97.06	1.51	1.53	None.	None.
B 571	Red clover,	98.22	0.99	0.79	None.	None.
B 573	Red clover,	97.41	2.33	0.26	None.	None.
B 600	Red clover,	99.94	0.06	0.00	None.	None.
B 601	Red clover,	99.69	0.22	0.09	None.	None.
B 602	Red clover,	98.92	0.76	0.32	None.	None.
B 605	Red clover,	99.61	0.23	0.16	None.	None.
B 606	Red clover,	98.57	1.23	0.20	1–3,098	None.
B 610	Red clover,	99.78	0.10	0.12	None.	None.
B 611	Red clover,	98.05	1.80	0.15	None.	None.
	Average,	97.04	2.11	0.85		
B 460	Alfalfa,	99.59	0.20	0.21	None.	None.
B 526	Alfalfa,	99.90	0.00	0.10	None.	None.
B 565	Alfalfa,	99.66	0.08	0.26	None.	None.
B 572	Alfalfa,	99.51	0.23	0.26	None.	None.
B 575	Alfalfa,	99.69	0.04	0.27	None.	None.
B 576	Alfalfa,	99.67	0.05	0.28	None.	None.
B 577	Alfalfa,	99.90	0.00	0.10	None.	None.
B 578	Alfalfa,	99.75	0.04	0.21	None.	None.
B 609	Alfalfa,	93.08	4.76	2.16	None.	None.
	Average,	98.97	0.60	0.43		
B 412	Timothy grass,	99.23	0.58	0.19	None.	None.
B 422	Timothy grass,	99.75	0.15	0.10	None.	None.
B 423	Timothy grass,	99.36	0.27	0.37	None.	None.
B 441	Timothy grass,	95.89	0.32	3.79	None.	None.
B 442	Timothy grass,	99.75	0.10	0.15	None.	None.
B 443	Timothy grass,	99.92	0.06	0.02	None.	None.
B 444	Timothy grass,	99.68	0.08	0.24	None.	None.
B 445	Timothy grass,	97.68	1.98	0.26	None.	None.
B 473	Timothy grass,	99.26	0.19	0.55	None.	None.
B 481	Timothy grass,	98.32	0.90	0.78	None.	None.
B 483	Timothy grass,	99.13	0.57	0.30	None.	None.
B 484	Timothy grass,	98.92	0.57	0.51	None.	None.
B 501	Timothy grass,	98.32	0.78	0.90	None.	None.
B 511	Timothy grass,	98.63	0.88	0.49	None.	None.
B 515	Timothy grass,	98.55	0.67	0.78	None.	None.
B 574	Timothy grass,	85.00	8.22	6.78	None.	None.
B 579	Timothy grass,	99.07	0.41	0.52	None.	None.
B 580	Timothy grass,	98.38	0.92	0.70	None.	None.
B 582	Timothy grass,	96.91	1.19	1.90	None.	None.
B 583	Timothy grass,	97.71	1.79	0.50	None.	None.
B 584	Timothy grass,	99.60	0.26	0.14	None.	None.
B 585	Timothy grass,	97.63	2.19	0.18	None.	None.
B 586	Timothy grass,	98.91	0.66	0.43	None.	None.
B 587	Timothy grass,	98.26	0.90	0.84	None.	None.
B 588	Timothy grass,	99.71	0.23	0.06	None.	None.
B 589	Timothy grass,	99.30	0.60	0.10	None.	None.
B 590	Timothy grass,	95.87	2.84	1.29	None.	None.
B 592	Timothy grass,	99.12	0.57	0.31	None.	None.
B 593	Timothy grass,	99.50	0.28	0.22	None.	None.
B 594	Timothy grass,	99.86	0.06	0.08	None.	None.
B 595	Timothy grass,	98.52	0.87	0.61	None.	None.
B 596	Timothy grass,	99.72	0.14	0.14	None.	None.
B 597	Timothy grass,	99.99	0.00	0.01	None.	None.
B 598	Timothy grass,	98.20	1.05	0.75	None.	None.
B 599	Timothy grass,	98.95	0.67	0.38	None.	None.
B 603	Timothy grass,	99.93	0.03	0.04	None.	None.
B 604	Timothy grass,	99.79	0.03	0.18	None.	None.
B 607	Timothy grass,	97.16	2.33	0.51	None.	None.
B 608	Timothy grass,	99.68	0.01	0.31	None.	None.
	Average,	98.44	0.88	0.68		
B 385	Alsike clover,	92.36	6.16	1.48	None.	None.
B 396	Alsike clover,	98.25	0.93	0.82	None.	None.
B 413	Alsike clover,	96.93	2.82	0.25	None.	None.
B 424	Alsike clover,	97.65	1.74	0.61	None.	None.
B 448	Alsike clover,	99.33	0.35	0.32	None.	None.
B 449	Alsike clover,	95.78	3.85	0.37	None.	None.
B 455	Alsike clover,	98.24	0.62	1.14	None.	None.
B 498	Alsike clover,	97.27	1.65	1.08	None.	None.
B 500	Alsike clover,	97.85	1.41	0.74	None.	None.
	Average,	97.07	2.17	0.76		

TABLE I—RESULTS OF TESTS ON SPECIAL SAMPLES—Concluded.

Analyst No.	Name of Seed.	Pure seed.	Foreign seed.	Inert matter.	Seeds of dodder.	Seeds of Canada thistle.
B 434	Perennial rye grass,	97.96	1.65	0.39	None.	None.
B 510	White clover,	92.40	6.24	1.36	None.	None.
B 435	Red top grass,	92.62	1.37	6.01	None.	None.
B 509	Canadian blue grass,	93.15	5.35	1.50	None.	None.
B 433	Kentucky blue grass,	89.64	0.44	9.92	None.	None.
B 581	Kentucky blue grass,	75.17	1.02	23.81	None.	None.
B 591	Kentucky blue grass,	76.43	0.84	22.73	None.	None.
	Average,	80.41	0.77	18.82		

RESULTS OF INSPECTION.

Each of the 221 official samples of seeds representing 19 kinds secured by Special Agents of the Department were carefully tested for purity and an average of the results of each kind of seed, which will be noted by referring to Table No. III, exceeded the established standards of purity.

Of the 74 samples of red clover tested, 4 fell below the standard of purity. Eleven were found to be guaranteed and 6 of these were less than the guarantees but above 97% pure. One sample which was be low the standard contained both the seeds of dodder and Canada thistle to the extent of one seed in 2,500 and 1 in 16,000 respectively. In 2 other samples dodder was detected in amounts not exceeding 1 seed in 3,000. The highest test was 99.87 per cent., the lowest 92.51 per cent. and the average 98.67 per cent.

Only 2 samples of crimson clover were received and examined both of which passed the standard, the average being 98.18 per cent. pure seed.

Of the 22 samples of alfalfa tested, only 1 was found to be below the standard testing 91.64 per cent. In 2 samples dodder was present to the extent of 1 seed in 18,000, and one in 35,500 respectively. The highest purity test was 99.94 per cent., the average being 99.11 per cent.

The number of samples of timothy-grass seed examined was 42, one of these fell below the standard and tested 96.38 per cent. and 1 tested 100 per cent. pure, the average being 99.14 per cent. Two samples were guaranteed; one 99 per cent. which was found to exceed this amount in per cent. of pure seed, testing 99.13 per cent. and another 99.50 per cent. which was found to contain 99.06 per cent. pure seed.

Of the cereal seeds received there were two samples of barley averaging 98.70 per cent.; 1 of spelt testing 99.49 per cent.; 1 of wheat, testing 99.55 per cent.; 7 of oats, averaging 98.58 per cent. and 1 sample of rye which showed 98.98 per cent. pure seed. All of these seeds met the standard of 97 per cent. and, except in 3 cases, were close to 99 per cent. pure.

Of the 37 samples of alsike clover tested for purity, 3 failed to meet the standard of 95 per cent., two samples represented stock guaranteed 99 per cent. pure, but which tested 98.01 per cent. and 98.49 per cent. passing the standard. One sample was guaranteed 97 per cent. and tested 94.89 per cent. The highest test was 99.28 per cent., the lowest 90.96 per cent. and the average 97.04 per cent. In 6 samples, which exceeded 95 per cent., Canada thistle was present in amounts ranging from 1 seed in 63,000 to 1 seed in 80,000.

The one sample of perennial rye grass received gave a test of 95.35 per cent. pure.

The millet seed secured for examination included 5 samples of German millet, averaging 99.16 per cent., 3 of Hungarian millet, averaging 98.48 per cent.; all meeting the standard of 95 per cent. and 1 of Common millet testing 99.22 per cent. In 1 sample of Hungarian millet, 1 seed of Canada thistle was detected in 3,000 of pure seed. Common millet is not included in the law and therefore no standard of purity is required, however, as the sample was secured in the usual manner it was thought advisable to make the test and include it in this report.

Five samples of white clover were received during the year, 1 of which was found to be guaranteed. The standard of purity for this seed is 90 per cent and the samples tested exceeded the standard. The highest test was 97.91 per cent., the lowest 90.92 per cent. and the average 94.07 per cent.

Five samples of redtop grass were received and the results of the purity test showed that all exceeded the standard of 85 per cent. The highest test was 96.37 per cent., the lowest 88.42 per cent. and the average 92.42 per cent.

Only 1 sample of Canadian blue grass was received which tested 88.06 per cent. pure seed.

The orchard grass seed was represented by 5 samples ranging from 79.07 per cent. to 90.16 per cent. with an average of 82.02 per cent. which exceeded the standard of 75 per cent.

There were 6 samples of Kentucky blue grass received giving an average purity test of 76.14 per cent. which slightly exceeded the standard of 75 per cent. Two of the samples fell below the guarantee and one of these, the lower which tested 60.67 per cent., contained Canada thistle to the extent of 1 seed in 128,000, the highest test being 85.46 per cent.

The seeds of dodder and Canada thistle were found to be present in 15 samples of seeds out of the 221 examined. The seeds of dodder were present in the red clover and alfalfa seeds; and the seeds of Canada thistle were the most numerous in alsike clover, being present in 6 samples, and were found in 1 sample of each of the following: Hungarian millet, Canadian blue grass and Kentucky blue grass.

In the following Table (No. II) will be found the results of the tests for purity made on the official samples of seeds collected during the year together with the names and addresses of the dealers from whom they were secured and of the seedsmen or seed growers from whom the seed was originally purchased. They are arranged in the order in which they are named in the seed law and also show their condition with respect to being free from the seeds of dodder and Canada thistle.

Table No. III shows the average results secured on each kind of seed tested together with the standards of purity.

Table No. IV, which also follows, shows the number of times foreign or noxious seeds occurred in each of the official samples examined together with their scientific and common names. A study of this table and becoming familiar with the general appearance of the seeds which occurred frequently and which are illustrated in the Plates included in the foregoing pages, will enable one to identify these seeds when they are present in the various kinds of seeds offered for sale.

TABLE II—RESULTS OF TESTS ON SAMPLES COLLECTED IN 1915.

Analyst's number.	Name of Seed and Name and Address of Grower or Seedsman.	Name and Address of Dealer.	Pure Seed.		Foreign seed.	Inert matter.	Seeds of Qodder.	Seeds of Canada thistle.
			Found.	Guaranteed.				
	RED CLOVER.		Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.
A 419	Mammoth, J. Bolgiano & Son, Baltimore, Md., ...	Lanson Brothers, Tionesta, ...	99.55	.....	0.17	0.28	.....	.....
A 219	Medium, John J. Buffington, Baltimore, Md., ...	Stichter Hardware Co., Reading, ...	98.55	99.68	0.89	0.56	.....	.....
A 220	Medium, Churchill Grain aud Seed Co., Toledo, Ohio,....	Stichter Hardware Co., Reading,.....	98.91	99.0	0.72	0.37	.....	.....
A 223	Mammoth, Churchill Grain and Seed Co., Toledo, Ohio, ...	Stichter Hardware Co., Reading, ...	98.43	99.0	1.16	0.41	.....	.....
A 329	Lion Brand Mammoth, Churchill Grain and Seed Co., Toledo, Ohio.	H. L. Orr, Tyrone, ...	98.92	.....	0.77	0.31	.....	.....
A 421	————, Churchill Grain and Seed Co., Toledo, Ohio,..	Leonard Ritter, St. Marys, ...	92.51	.....	3.24	4.25	.....	.....
A 423	Mammoth, Churchill Grain and Seed Co., Toledo, Ohio, ...	Leonard Ritter, St. Marys, ...	99.08	.....	0.40	0.52	.....	.....
A 326	Eagle Brand, Cratz Brothers, Toledo, Ohio, ...	H. L. Orr, Tyrone, ...	98.06	.....	1.41	0.53	.....	.....
A 332	Pine Tree Mammoth, Craver-Dickinson Seed Co., Buffalo, N. Y.	Waite & McClain, Tyrone, ...	99.51	.....	0.08	0.41	.....	.....
A 387	———— Craver-Dickinson Seed Co., Buffalo, N. Y.,...	Blank & Gottshall, Sunbury, ...	98.90	.....	0.91	0.19	.....	.....
A 426	Mammoth, Craver-Dickinson Seed Co., Buffalo, N. Y., ...	Chaapel's Seed Store, Williamsport, ...	99.31	.....	0.26	0.43	.....	.....
A 237	Globe Brand, The Albert Dickinson Seed Co., Chicago, Ill.,	Hudson & Kuhns, Greensburg, ...	99.65	.....	0.24	0.11	.....	.....
A 247	———— The Alhert Dickinson Seed Co., Chicago, Ill.,	McFarland Supply Co., Greensburg, ...	98.83	.....	0.70	0.47	.....	.....
A 262	Ace Brand, The Alhert Dickinson Seed Co., Chicago, Ill.,..	John Thomas & Sons, Johnstown, ...	99.05	.....	0.68	0.27	.....	.....
A 263	Ace Brand Mammoth, The Albert Dickinson Seed Co., Chicago, Ill.	John Thomas & Sons, Johnstown, ...	89.96	.....	0.86	0.18	.....	.....
A 310	Ace Mammoth, The Albert Dickinson Seed Co., Chicago, Ill.	The Loucks Hardware Co., Scottdale, ...	98.73	.....	0.84	0.43	.....	.....
A 311	Ace Brand, The Alhert Dickinson Seed Co., Chicago, Ill.,..	The Loucks Hardware Co., Scottdale, ...	98.30	.....	1.46	0.24	.....	.....
A 345	Mammoth, The Albert Dickinson Seed Co., Chicago, Ill.,..	L. A. Fischer & Co., Bradford, ...	99.32	.....	0.45	0.23	.....	.....
A 348	Ace Medium, The Alhert Dickinson Seed Co., Chicago, Ill.,	L. A. Fischer & Co., Bradford, ...	98.89	.....	0.56	0.55	.....	.....
A 369	Ace Brand Mammoth, The Alhert Dickinson Seed Co., Chicago, Ill.	R. W. & M. F. Rose Co., Mansfield, ...	98.54	.....	1.09	0.37	.....	.....
A 378	Kaiser Brand, The Alhert Dickinson Seed Co., Chicago, Ill.,	R. J. Dunham, Wellsboro, ...	99.18	.....	1.43	0.39	.....	.....
A 379	Ace Brand Mammoth, The Alhert Dickinson Seed Co., Chicago, Ill.	R. J. Dunham, Wellsboro, ...	98.80	.....	1.03	0.17	.....	.....
A 217	Medium Bulked, H. W. Doughten, New York, N. Y., ...	Haff & Brother, Inc., Reading, ...	98.09	99.0	1.79	0.12	.....	.....
A 226	Medium, H. W. Doughten, New York, N. Y., ...	Bard Hardware Co., Reading, ...	97.43	.....	2.03	0.54	.....	.....
A 344	Medium, Furnas-Brown Grain Co., Saint Paris, Ohio, ...	J. F. Murphy, Clearfield, ...	99.29	.....	0.43	0.28	.....	.....
A 356	Standard A. Brand, O. Gandy & Co., South Whitley, In.,...	Emporium Milling Co., Emporium, ...	99.51	99.0	0.19	0.30	.....	.....

TABLE II—RESULTS OF TESTS ON SAMPLES COLLECTED IN 1915—Continued.

Analyst's number.	Name of Seed and Name and Address of Grower or Seedsman.	Name and Address of Dealer.	Pure Seed.		Foreign seed.	Inert matter.	Seeds of dodder.	Seeds of Canada thistle.
			Found.	Guaranteed.				
			Per ct.	Per ct.	Per ct.	Per ct.	Per et.	Per ct.
A 411	Standard A. Brand Mammoth, O. Gandy & Co., South Whitley, Ind.	Enterprise Milling Co., Oil City, ...	99.87	99.0	0.09	0.04	.....	.....
A 412	Fancy A. Brand, O. Grandy & Co., South Whitley, Ind.,....	Enterprise Milling Co., Oil City, ...	99.82	99.0	0.14	0.04	.....	.....
A 395	————, Henry Hirsh, Toledo, Obio, ...	Quarryville Farmers' Assoc., Quarryville,	97.46	.....	1.89	0.65	.....	.....
A 398	————, Henry Hirsh, Toledo, Ohio, ...	Herr & Co., Lancaster, ...	98.23	.....	1.21	0.56	.....	.....
A 331	————, D. S. Kloss, Tyrone, Pa., ...	Waite & McClain, Tyrone, ...	99.35	.....	0.41	0.24	.....	.....
A 250	Medium, K. M. McFarland, Greensburg, Pa., ...	McFarland Supply Co., Greensburg, ...	96.97	.....	2.87	0.16	.....	.....
A 233	Mammoth, Nungesser-Dickinson Seed Co., New York, N. Y.,	H. F. Hertzog, Reading, ...	99.08	.....	0.83	0.09	.....	.....
A 215	————, The Philadelphia Seed Co., Philadelphia, Pa.,	The John H. Obold, Co., Reading,.....	98.74	9.70	1.04	0.22	1-6000	.....
A 230	————, The Philadelphia Seed Co., Philadelphia, Pa.,	A. W. Masser, Reading, ...	99.60	.....	0.38	0.02	.....	.....
A 405	Quaker Brand, The Philadelphia Seed Co., Philadelphia, Pa.	Harry K. Hersbey, Leaman Place, ...	99.20	.....	0.31	0.49	.....	.....
A 328	Home Grown, Jacob Reisb, Unknown, ...	H. L. Orr, Tyrone, ...	98.14	.....	0.72	1.14	.....	.....
A 254	————, Walter S. Schell, Harrisburg, Pa., ...	Walter S. Schell, Harrisburg, ...	99.54	.....	0.30	0.16	.....	.....
A 268	Small, Scobie & Parker Co., Pittsburgh, Pa., ...	Scobie & Parker Co., Pittsburgh, ...	98.18	.....	1.32	0.50	.....	.....
A 277	Mammotb, Scobie & Parker Co., Pittsburgh, Pa., ...	Scobie & Parker Co., Pittsburgh, ...	98.97	.....	0.49	0.54	.....	.....
A 282	Special Medium, The I. W. Scott Co., Pittsburgh, Pa.,....	The I. W. Scott Co., Pittsburgh, ...	99.59	.....	0.15	0.26	.....	.....
A 283	AAA Medium, The I. W. Scott Co., Pittsburgh, Pa., ...	The I. W. Scott Co., Pittsburgb, ...	99.65	.....	0.25	0.10	.....	.....
A 284	AA Medium, The I. W. Scott, Co., Pittsburgh, Pa., ...	The I. W. Scott Co., Pittsburgb, ...	98.44	.....	1.39	0.17	.....	.....
A 285	Special Mammoth, The I. W. Scott Co., Pittsburgh, Pa.,..	The I. W. Scott Co., Pittsburgh, ...	99.65	.....	0.27	0.08	.....	.....
A 286	AAA Mammotb, The I. W. Scott Co., Pittsburgb, Pa., ...	The I. W. Scott Co., Pittsburgh, ...	99.70	.....	0.05	0.25	.....	.....
A 260	Puritan Brand, W. A. Simpson & Co., Baltimore, Md.,....	John G. Simpson, Huntingdon, ...	99.59	.....	0.28	0.13	.....	.....
A 330	————, W. A. Simpson Co., Baltimore, Md., ...	Waite & McClain, Tyrone, ...	98.03	.....	1.32	0.65	.....	.....
A 333	Purity Brand, W. A. Simpson & Co., Baltimore, Md., ...	Waite & McClain, Tyrone, ...	99.26	.....	0.42	0.32	.....	.....
A 393	Purity Brand, W. A. Simpson & Co., Baltimore, Md., ...	S. Book & Brotber, Qnarryville, ...	99.57	.....	0.35	0.08	.....	.....
A 417	Purity Brand, W. A. Simpson & Co., Baltimore, Md., ...	Lanson Brothers, Tionesta, ...	99.39	99.5	0.19	0.42	.....	.....
A 418	Sapling, W. A. Simpson & Co., Baltimore, Md., ...	Lanson Brothers, Tionesta, ...	99.19	99.5	0.48	0.33	.....	.....
A 318	Page, W. H. Small & Co., Evansville, Ind., ...	King Brothers, Uniontown, ...	98.94	.....	0.42	0.64	.....	.....
A 361	Mammoth, W. H. Small & Co., Evansville, Ind., ...	F. O. Ackley, Westfield, ...	94.27	.....	4.37	1.36	1-2,500	1-16,000
A 366	..... W. H. Small & Co., Evansville, Ind., ...	Equity Co-Operative Exchange, Wellsboro,	94.94	.....	4.31	0.75	.....	.....
A 367	Pea Vine Brand, A. Y. Sony, Lebanon, Ind., ...	R. W. & M. F. Rose Co., Mansfield, ...	99.60	.....	0.07	0.33	.....	.....
A 212	Reliable Brand Medium, The Standard Seed Co., Buffalo, N. Y.	Early & Detweiler, Palmyra, ...	98.57	.....	0.78	0.65	.....	.....

A 358	Reliable Brand Mammoth, The Stanford Seed Co., Buffalo, N. Y.	Port Allegany Milling Co., Port Allegany,	98.57	.....	0.47	0.96	.....	.....
A 323	..... S. B. Templetou, Tyrone, Pa.,	Grazier Brothers, Tyrone,	98.52	.....	0.65	0.83	.....	.....
A 211	Star Bulked Medium, The Toledo Field Seed Co., Inc., Toledo, Ohio.	Early & Detweiler, Palmyra,	98.00	.....	1.74	0.26	.....	.....
A 389	....., The Toledo Field Seed Co., Inc., Toledo, Ohio, ...	W. W. Welliver, Danville,	98.27	.....	1.39	0.34	.....	.....
A 321	..... Western Grain Co., Unknowu,	Mike Duyava, New Salem,	98.20	.....	0.90	0.90	.....	.....
A 210	Eureka, Whitney-Eckstein Seed Co., Buffalo, N. Y.,	J. H. Kettering & Son, Palmyra,	99.37	.....	0.33	0.30	.....	.....
A 214	Eureka Medium, Whitney-Eckstein Seed Co., Buffalo, N. Y.	Newgard & Bachman, Annville,	99.73	.....	0.13	0.14	.....	.....
A 239	Pan-American, Whitney-Eckstein Seed Co., Buffalo, N. Y.,	A. J. Steele, Latrobe,	98.20	99.5	1.30	0.50	.....	.....
A 241	Imperator, Whitney-Eckstein Seed Co., Buffalo, N. Y.,....	A. J. Steele, Latrobe,	97.78	.....	1.45	0.77	.....	.....
A 256	Pan-American, Whitney-Eckstein Seed Co., Buffalo, N. Y.,	C. H. Miller Hardware Co., Huntingdon, ..	97.67	.....	1.93	0.40	.....	.....
A 306	Imperator, Whitney-Eckstein Seed Co., Buffalo, N. Y.,....	J. H. Brown & Son, Mt. Pleasant,	99.70	.....	0.12	0.18	.....	.....
A 353	Pan-American Mammoth, Whitney-Eckstein Seed Co., Buffalo, N. Y.	Herzog Milling Co., Smethport.	98.52	.....	0.96	0.52	.....	.....
A 382	..... Whitney-Eckstein Seed Co., Buffalo, N. Y.,.....	Rochester Seed and Supply Co., Rochester,	97.98	.....	1.42	0.60	.....	.....
A 338	Elk, Whitney-Noyes Seed Co., Buffalo, N. Y.,	J. O. Reed, Philipsburg,	99.35	.....	0.46	0.19	1-3,000	.....
A 206	Medium, Unknown,	A. M. Weltmer's Sons, Lehanon,	98.34	.....	0.59	1.07	.....	.....
A 259	Puritan Brand Mammoth, Unknown,	L. S. Goodman & Sous, Huntingdon,	98.92	.....	0.99	0.09	.....	.....
A 368	Rose Brand Maumoth, Unknown,	R. W. & M. F. Rose Co., Mansfield,	99.49	.....	0.35	0.16	.....	.....
A 402	..... Unknown,	Sprecher & Ganss, Lancaster,	99.41	.....	0.39	0.20	.....	.....
		Average,	98.67	.....	0.89	0.44		
	CRIMSON CLOVER.							
A 271	..... Scobie & Parker Co., Pittsburgh, Pa.,	Scobie & Parker Co., Pittsburgh,	97.30	.....	2.19	0.58	.....	.....
A 290	Special, The I. W. Scott Co., Pittsburgh, Pa.,	The I. W. Scott Co., Pittsburgh,	99.06	.....	0.51	0.43	.....	.....
		Average,	98.18	.....	1.32	0.50		
	ALFALFA.							
A 414	..... J. Bolgiano & Son, Baltimore, Md.,	Lanson Brothers, Tionesta,	99.59	.....	0.10	0.31	.....	.....
A 422	..... Churchill Grain and Seed Co., Toledo, Ohio,	Leonard Ritter, St. Marys,	99.69	.....	0.05	0.26	.....	.....
A 392	..... E. W. Conklin & Co., Binghamton, N. Y.,	W. W. Welliver, Danville,	99.79	.....	0.08	0.13	.....	.....
A 317	Globe, Craver-Dickinson Seed Co., Inc., Buffalo, N. Y.,....	King Brothers, Uniontown.	99.43	.....	0.34	0.23	.....	.....
A 335	Pine Tree, Craver-Dickinson Seed Co., Inc., Buffalo, N. Y.,	Waite & McClain, Tyroue,	99.47	.....	0.22	0.31	.....	.....
A 360	Pine Tree Brand, Craver-Dickinson Seed Co., Inc., Buffalo, N. Y.	Port Allegany Milling Co., Port Allegany,	99.75	.....	0.05	0.16	.....	.....
A 425	..... Craver-Dickinson Seed Co., Inc., Chicago, Ill.,	Chaapel's Seed Store, Williamsport.	99.60	.....	0.12	0.28	.....	.....
A 249	The Albert-Dickinson Seed Co., Chicago, Ill.,	McFarland Supply Co., Greeusburg,	99.94	.....	0.01	0.05	.....	.....
A 372	Ace Brand, The Alhert Dickinson Seed Co., Chicago, Ill.,	R. W. & M. F. Rose Co., Mansfield,	99.74	.....	0.06	0.20	.....	.....
A 377	Ace Brand, The Alhert Dickinson Seed Co., Chicago, Ill....	R. J. Dunham, Wellshoro,	99.91	.....	0.00	0.09	.....	.....
A 403	..... The Alhert Dickinson Seed Co., Chicago, Ill.,	Sprecher & Ganss, Lancaster,	99.39	.....	0.23	0.38	.....	.....
A 400	..... Henry Hirsh, Toledo, Ohio,	Herr & Co., Lancaster,	97.30	.....	2.34	0.36	1-35,500	.....
A 232	..... The Philadelphia Seed Co., Philadelphia, Pa.,	A. W. Masser, Reading,	99.67	.....	0.14	0.19	.....	.....
A 324	Quaker Brand, The Philadelphia Seed Co., Phila., Pa.,.....	H. L. Orr, Tyrone,	99.80	.....	0.04	0.16	.....	.....
A 407	..... The Philadelphia Seed Co., Philadelphia, Pa., ...	Harry K. Hershey, Leaman Place,	99.77	.....	0.06	0.17	.....	.....
A 251	..... Walter S. Schell, Harrishurg, Pa.,	Walter S. Schell, Harrishurg,	99.28	.....	0.55	0.17	1-18,000	.....
A 372	..... Scobie & Parker Co., Pittsburgh, Pa.,	Scobie & Parker Co., Pittsburgh,	91.64	.....	8.25	0.11	.....	.....
A 289	Special, The I. W. Scott Co., Pittsburgh, Pa.,	The I. W. Scott Co., Pittsburgh,	98.75	.....	1.07	0.18	.....	.....
A 227	..... Whitney-Eckstein Seed Co., Buffalo, N. Y.,	Bard Hardware Co., Reading,	99.49	.....	0.15	0.36	.....	.....
A 244	..... Whitney-Eckstein Seed Co., Buffalo N. Y.,	The Philip Doherty Hardware and Supply Co., Latrobe.	99.69	.....	0.17	0.14	.....	.....

TABLE II—RESULTS OF TESTS ON SAMPLES COLLECTED IN 1915—Continued.

Analyst's number.	Name of Seed and Name and Address of Grower or Seedsman.	Name and Address of Dealer.	Pure Seed.		Foreign seed.	Inert matter.	Seeds of dodder.	Seeds of Canada thistle.
			Found.	Guaranteed.				
			Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.
A 352	Fancy, Whitney-Eckstein Seed Co., Buffalo, N. Y., ...	Herzog Milling Co., Smethport, ...	99.47	.....	0.34	0.19	.....	.....
A 385	..... Unknown, ...	Blank & Gottshall, Sunbury, ...	99.27	.....	0.33	0.40	.....	.....
		Average, ...	99.17	.....	0.67	0.22		
	TIMOTHY GRASS.							
A 236	Fancy, Churchill Grain and Seed Co., Toledo, Ohio, ...	Hudson & Kuhns, Greensburg, ...	98.89	.....	0.15	0.96	.....	.....
A 420	..... Churchill Grain and Seed Co., Toledo, Ohio, ...	Leonard Ritter, St. Marys, ...	99.68	.....	0.14	0.18	.....	.....
A 225	..... E. W. Conklin & Co., Binghamton, N. Y., ...	H. F. Hertzog, Reading, ...	98.08	.....	1.67	0.25	.....	.....
A 339	Choice, E. W. Conklin & Co., Binghamton, N. Y., ...	J. O. Reed, Philipsburg, ...	99.05	.....	0.60	0.35	.....	.....
A 371	Rose Brand, E. W. Conklin & Co., Binghamton, N. Y., ...	R. W. & M. F. Rose Co., Mansfield, ...	99.48	.....	0.34	0.18	.....	.....
A 391	King Brand, E. W. Conklin & Co., Binghamton, N. Y., ..	W. W. Welliver, Danville, ...	99.81	.....	0.00	1.19	.....	.....
A 327	Royal, Cratz Brothers, Toledo, Ohio, ...	H. L. Orr, Tyrone, ...	99.09	.....	0.49	0.42	.....	.....
A 337	Pine Tree, Craver-Dickinson Seed Co., Buffalo, N. Y., ...	J. O. Reed, Philipsburg, ...	99.53	.....	0.18	0.29	.....	.....
A 246	..... The Albert Dickinson Seed Co., Chicago, Ill., ...	McFarland Supply Co., Greensburg, ...	99.54	.....	0.08	0.38	.....	.....
A 265	Pine Tree, The Albert Dickinson Seed Co., Chicago, Ill., ..	John Thomas & Sons, Johnstown, ...	99.70	.....	0.10	0.20	.....	.....
A 308	Pine Tree, The Albert Dickinson Seed Co., Chicago, Ill, ..	The Loucks Hardware Co., Scottdale, ...	99.70	.....	0.03	0.27	.....	.....
A 370	Pine Tree, The Albert Dickinson Seed Co., Chicago, Ill., ...	R. W. & M. F. Rose Co., Mansfield, ...	99.64	.....	0.09	0.27	.....	.....
A 373	Bison Brand, The Albert Dickinson Seed Co., Chicago, Ill.,	R. J. Dunham, Wellshoro, ...	98.54	.....	0.81	0.65	.....	.....
A 375	Globe Brand, The Albert Dickinson Seed Co., Chicago, Ill.,	R. J. Dunham, Wellsboro, ...	99.93	.....	0.02	0.05	.....	.....
A 376	Pine Tree Brand, The Albert Dickinson Seed Co., Chicago, Ill.	R. J. Dunham, Wellsboro, ...	99.66	.....	0.15	0.19	.....	.....
A 404	..... The Albert Dickinson Seed Co., Chicago, Ill, ...	Sprecher & Ganns, Lancaster, ...	98.84	.....	0.83	0.33	.....	.....
A 410	Pine Tree, The Albert Dickinson Seed Co., Chicago, Ill., ..	J. A. Gault Co., Kittanning, ...	99.55	.....	0.05	0.40	.....	.....
A 343	..... Furnas-Brown Grain Co., Saint Paris, Ohio, ...	J. T. Murphy, Clearfield, ...	98.37	.....	0.05	0.58	.....	.....
A 336	..... R. D. Gingery, Unknown, ...	Waite & McClain, Tyrone, ...	99.73	.....	0.18	0.09	.....	.....
A 355	Standard A. Brand, O. Gandy & Co., South Whitley, Ind.,	Emporium Milling Co., Emporium, ...	99.13	99.0	0.72	0.15	.....	.....
A 399	Value, Henry Hirsh, Toledo, Ohio, ...	Herr & Co., Lancaster, ...	99.48	.....	0.14	0.38	.....	.....
A 380	..... T. C. Jenkins, Pittsburgh, Pa., ...	Rochester Seed and Supply Co., Rochester,	97.96	.....	1.07	0.98	.....	.....
A 228	..... Noble Brothers, Gibson City, Ill., ...	Bard Hardware Co., Reading, ...	98.57	.....	0.53	0.90	.....	.....
A 229	..... Philadelphia Seed Co., Philadelphia, Pa., ...	A. W. Masser, Reading, ...	98.91	.....	0.79	0.30	.....	.....
A 408	..... Philadelphia Seed Co., Philadelphia, Pa., ...	Harry K. Hershey, Leaman Place, ...	98.97	.....	0.56	0.47	.....	.....
A 263	..... Walter S. Schell, Harrisburg, Pa., ...	Walter S. Schell, Harrisburg, ...	99.49	.....	0.43	0.08	.....	.....
A 269	..... Scobie & Parker Co., Pittsburgh, Pa., ...	Scobie & Parker Co., Pittsburgh, ...	96.38	.....	3.09	0.53	.....	.....

A 279	Special, The I. W. Scott Co., Pittsburgh, Pa., ...	The I. W. Scott Co., Pittsburgh, ...	100.00	.....	.....	.....	.....	.....
A 280	XXX, The I. W Scott Co., Pittsburgh, Pa., ...	The I. W. Scott Co., Pittsburgh, ...	99.66	.....	0.15	0.19	.....	.....
A 281	XX, The I. W. Scott Co., Pittsburgh, Pa., ...	The I. W. Scott Co., Pittsburgh, ...	98.49	.....	0.52	0.99	.....	.....
A 416	Purity Brand, W. A. Simpson & Co., Baltimore, Md., ...	Lanson Brothers, Tionesta, ...	99.06	99.5	0.74	0.20	.....	.....
A 315	Faro, W. H. Small & Co., Evansville, Ind., ...	King Brothers, Uniontown, ...	99.18	.....	0.52	0.30	.....	.....
A 365	.... W. H. Small & Co., Evansville, Ind., ...	Equity Co-Operative Exchange, Wellsboro,	99.44	.....	0.32	0.24	.....	.....
A 305	Liberty, The Stanford Seed Co., Buffalo, N. Y., ...	J. H. Brown & Son, Mt. Pleasant, ...	99.57	.....	0.18	0.25	.....	.....
A 359	Liberty, The Stanford Seed Co., Buffalo, N. Y., ...	Port Allegany Milling Co., Port Allegany,	99.50	.....	0.25	0.25	.....	.....
A 396	Honor, The Stanford Seed Co., Buffalo, N. Y., ...	Quarryville Farmers' Ass'n., Quarryville,	99.82	.....	0.00	0.18	.....	.....
A 420	..... Western Grains Co., Unknown, ...	Mike Duyava, New Salem, ...	99.48	.....	0.10	0.42	.....	.....
A 242	Pan-American, Whitney-Eckstein Seed Co., Buffalo, N. Y.,	A. J. Steele, Latrobe, ...	99.27	.....	0.31	0.42	.....	.....
A 243	Imperator, Whitney-Eckstein Seed Co., Buffalo, N. Y.,....	The Phillip Doherty Hardware and Supply Co., Latrobe.	97.42	.....	1.16	1.42	.....	.....
A 347	Pan-American, Whitney-Eckstein Seed Co., Buffalo, N. Y.,	L. A. Fischer & Co., Bradford, ...	98.95	.....	0.76	0.29	.....	.....
A 362	Gold Medal, Whitney-Eckstein Seed Co., Buffalo, N. Y.,..	F. O. Ackley, Westfield, ...	99.72	.....	0.17	0.11	.....	.....
A 409	Dilworth's Best, Unknown,.....	Dilworth Brothers Co., Pittsburgh, ...	98.72	.....	0.96	0.32	.....	.....
		Average, ...	99.14	.....	0.46	0.40		
	BARLEY.							
A 266	..... The Albert Dickinson Seed Co., Chicago, Ill., ...	John Thomas & Sons, Johnstown, ...	99.39	.....	0.53	0.08	.....	.....
A 300	Beardless, The I. W. Scott Co., Pittsburgh, Pa., ...	The I. W. Scott Co., Pittsburgh, ...	98.01	.....	1.87	0.12	.....	.....
		Average, ...	98.70	.....	1.20	0.10		
	SPELT.							
A 303	..... The I. W. Scott Co., Pittsburgh, Pa., ...	The I. W. Scott Co., Pittsburgh, ...	99.49	.....	0.47	0.04	.....	.....
	WHEAT.							
A 302	Blue Stem Spring, The I. W. Scott Co., Pittsburgh, Pa.,..	The I. W. Scott Co., Pittsburgh, ...	99.55	.....	0.23	0.22	.....	.....
	OATS.							
A 261	Scottish Chief, Harvey Seed Co., Buffalo, N. Y., ...	John G. Simpson, Huntingdon, ...	97.34	.....	2.27	0.39	.....	.....
A 357	..... Harvey Seed Co., Buffalo, N. Y., ...	Emporium Milling Co., Emporium, ...	98.95	.....	0.92	0.13	.....	.....
A 273	Sweedish, Scobie & Parker Co., Pittsburgh, Pa., ...	Scobie & Parker Co., Pittsburgh, ...	99.77	.....	0.01	0.22	.....	.....
A 297	Alberta, The I. W. Scott Co., Pittsburgh, Pa., ...	The I. W. Scott Co., Pittsburgh, ...	97.20	.....	1.24	1.56	.....	.....
A 298	Montana, The I. W. Scott Co., Pittsburgh, Pa., ...	The I. W. Scott Co., Pittsburgh, ...	97.77	.....	2.15	0.08	.....	.....
A 299	Canadian White, The I. W. Scott Co., Pittsburgh, Pa.,..	The I. W. Scott Co., Pittsburgh, ...	99.39	.....	0.59	0.02	.....	.....
A 364	Seed, Whitney-Eckstein Seed Co., Buffalo, N. Y., ...	F. O. Ackley, Westfield, ...	99.66	.....	0.19	0.15	.....	.....
		Average, ...	98.58	.....	1.05	0.37		
	RYE.							
A 301	Spring, The I. W. Scott Co., Pittsburgh, Pa.,.....	The I. W. Scott Co., Pittsburgh, ...	98.98	.....	1.00	0.02	.....	.....
	ALSIKE CLOVER.							
A 415	..... J. Bolgiano & Son, Baltimore, Md., ...	Lanson Brothers, Tionesta, ...	96.60	.....	2.79	0.61	.....	1-9,100
A 218	..... Churchill Grain and Seed Co., Toledo, Ohio, ...	Stichter Hardware Co., Reading, ...	98.01	99.0	0.53	1.46	.....	.....
A 424	..... Churchill Grain and Seed Co., Toledo, Ohio, ...	Leonard Ritter, St. Marys, ...	97.35	.....	0.94	1.21	.....	.....
A 325	Royal, Cratz Brothers, Toledo, Ohio, ...	H. L. Orr, Tyrone, ...	96.23	.....	1.98	1.79	.....	.....
A 334	Pine Tree, Craver-Dickinson Seed Co., Buffalo, N. Y., ...	Waite & McClain, Tyrone, ...	98.45	.....	0.43	1.12	.....	.....

TABLE II—RESULTS OF TESTS ON SAMPLES COLLECTED IN 1915—Continued.

Analyst's number.	Name of Seed and Name and Address of Grower or Seedsman.	Name and Address of Dealer.	Pure Seed.		Foreign seed.	Inert matter.	Seeds of dodder.	Seeds of Canada thistle.
			Found.	Guaranteed.				
			Per et.	Per ct.	Per ct.	Per ct.	Per ct	Per ct.
A 234	Pine Tree, Craver-Dickinson Seed Co., Buffalo, N. Y., ...	J. O. Reed, Philipsburg, ...	98.89	.....	0.67	0.44	.....	.....
A 386	..... Craver-Dickinson Seed Co., Buffalo, N. Y., ...	Blank & Gottshall, Sunbury, ...	95.88	.....	3.15	0.96	.....	1-6,300
A 238	Pine Tree, The Albert Dickinson Seed Co., Chicago, Ill.,....	Hudson & Kuhn, Greensburg, ...	98.17	.....	1.51	0.32	.....	.....
A 248	..... The Albert Dickinson Seed Co., Chicago, Ill., ...	McFarland Supply Co., Greensburg, ...	95.08	.....	4.42	0.50	.....	.....
A 264	Ace Brand, The Albert Dickinson Seed Co., Chicago, Ill.,...	John Thomas & Sons, Johnstown, ...	92.89	.....	6.91	0.20	.....	.....
A 369	Ace, The Albert Dickinson Seed Co., Chicago, Ill., ...	The Loucks Hardware Co., Scottdale, ...	96.56	.....	2.94	0.50	.....	.....
A 374	Ace Brand, The Albert Dickinson Seed Co., Chicago, Ill.,....	R. J. Dunham, Wellsboro, ...	96.34	.....	3.30	0.36	.....	1-23,500
A 234	..... H. W. Donghten, New York, N. Y., ...	H. F. Hertzog, Reading, ...	97.17	.....	2.24	0.59	.....	.....
A 413	..... O. Gaudy & Co., South Whitley, Ind., ...	Enterprise Milling Co., Oil City, ...	98.49	99.0	1.22	0.29	.....	.....
A 397	..... Henry Hirsh, Toledo, Ohio, ...	Herr & Co., Lancaster, ...	97.70	.....	1.58	0.72	.....	.....
A 216	..... The Philadelphia Seed Co., Philadelphia, Pa., ...	The John H. Obold Co., Reading, ...	94.89	97.0	4.56	0.55	.....	.....
A 231	..... The Philadelphia Seed Co., Philadelphia, Pa., ...	A. W. Masser, Reading, ...	96.24	.....	3.25	0.51	.....	1-36,000
A 406	..... The Philadelphia Seed Co., Philadelphia, Pa., ...	Harry K. Hershey, Leaman Place, ...	96.53	.....	2.69	0.78	.....	.....
A 401	..... W. G. Scarlett & Co., Baltimore Md., ...	Sprecher & Gauss, Lancaster, ...	97.89	.....	1.67	0.44	.....	.....
A 252	..... Walter S. Schell, Harrisburg, Pa., ...	Walter S. Schell, Harrisburg, ...	98.43	.....	0.88	0.69	.....	.....
A 270	..... Scobie & Parker Co., Pittsburgh, Pa., ...	Scobie & Parker Co., Pittsburgh, ...	95.89	.....	4.00	0.11	.....	.....
A 287	Special, The I. W. Scott Co., Pittsburgh, Pa., ...	The I. W. Scott Co., Pittsburgh, ...	99.28	.....	0.40	0.32	.....	.....
A 288	AAA, The I. W. Scott, Pittsburgh, Pa., ...	The I. W. Scott Co., Pittsburgh, ...	98.30	.....	1.04	0.66	.....	1-80,000
A 394	..... W. A. Simpson & Co., Baltimore, Md., ...	S. Book & Brother, Quarryville, ...	99.22	.....	0.19	0.59	.....	.....
A 213	Reliable, The Stanford Seed Co., Buffalo, N. Y., ...	Early & Detweiler, Palmyra, ...	97.77	.....	1.96	0.27	.....	.....
A 307	Reliable, The Stanford Seed Co., Buffalo, N. Y., ...	J. H. Brown & Son, Mt. Pleasant, ...	98.43	.....	0.78	0.79	.....	.....
A 316	..... The Stanford Seed Co., Buffalo, N. Y., ...	King Brothers, Uniontown, ...	98.58	.....	0.75	0.67	.....	.....
A 349	Choice, The Stanford Seed Co., Buffalo, N. Y., ...	L. A. Fischer & Co., Bradford, ...	97.29	.....	2.43	0.28	.....	.....
A 390	Pearl Brand, Toledo Field Seed Co., Toledo, Ohio, ...	W. W. Welliver, Danville, ...	96.13	.....	2.33	1.54	.....	.....
A 322	..... Western Grain Co., Unknown, ...	Mike Duyava, New Salem, ...	96.66	.....	0.38	2.96	.....	.....
A 225	..... Whitney-Eckstein Seed Co., Buffalo, N. Y., ...	Bard Hardware Co., Reading, ...	96.63	.....	2.94	0.43	.....	.....
A 240	Pan-American, Whitney-Eckstein Seed Co., Buffalo, N. Y.,	A. J. Steele, Latrobe, ...	98.28	.....	1.50	0.22	.....	.....
A 245	Imperator, Whitney-Eckstein Seed Co., Buffalo, N. Y.,....	The Philip Doherty Hardware and Supply Co., Latrobe.	90.96	.....	7.60	1.44	.....	.....
A 354	Pan-American, Whitney-Eckstein Seed Co., Buffalo, N. Y.,	Herzog Milling Co., Smethport, ...	96.52	.....	2.60	0.88	.....	1-33,500
A 363	Fancy, Whitney-Eckstein Seed Co., Buffalo, N. Y., ...	F. O. Ackley, Westfield, ...	95.90	.....	3.77	0.33	.....	.....
A 207	..... Unkuown, ...	A. M. Weltmer's Sons, Lebanon, ...	98.29	.....	1.42	0.29	.....	.....
A 381	..... Unknown, ...	Rochester Seed and Supply Co., Rochester,	97.86	.....	1.62	0.52	.....	.....
		Average, ...	97.04	.....	2.25	0.71		

	PERENNIAL RYE GRASS.							
A 278	..... Scobie & Parker Co., Pittsburgh, Pa., ...	Scobie & Parker Co., Pittsburgh, ...	95.35	.....	1.91	2.74	.....	.....
	GERMAN MILLET.							
A 384	..... Craver-Dickinson Seed Co., Buffalo, N. Y., ...	Blank & Gottshall, Sunbury, ...	98.60	.....	0.89	0.51	.....	.....
A 267	..... The Albert Dickinson Seed Co., Chicago, Ill., ...	John Thomas & Sons, Johnstown, ...	99.03	.....	0.74	0.23	.....	.....
A 383	..... Wm. G. Scarlett & Co., Baltimore, Md., ...	Rochester Seed and Supply Co., Rochester,	99.31	.....	0.55	0.14	.....	.....
A 294	Southern Tennessee or Golden, The I. W. Scott Co., Pittsburgh, Pa.	The I. W. Scott Co., Pittsburgb, ...	99.22	.....	0.12	0.66	.....	.....
A 295	XXX, The I. W. Scott Co., Pittsburgb, Pa., ...	The I. W. Scott Co., Pittsburgh, ...	99.62	.....	0.25	0.13	.....	.....
		Average, ...	99.16	.....	0.51	0.33		
	HUNGARIAN MILLET.							
A 296	..... The I. W. Scott Co., Pittsburgh, Pa., ...	The I. W. Scott Co., Pittsburgb, ...	99.13	.....	0.68	0.19	.....	.....
A 340	..... The Stanford Seed Co., Buffalo, N. Y., ...	J. O. Reed, Philipsburg, ...	97.76	.....	2.05	0.19	.....	1-3,000
A 388	..... Unknown, ...	Blank & Gottshall, Sunbury, ...	98.56	.....	1.19	0.25	.....	.....
		Average, ...	98.48	.....	1.31	0.21		
	COMMON MILLET.							
A 341	Yellow, The Stanford Seed Co., Buffalo, N. Y., ...	J. O. Reed, Philipsburg, ...	99.23	.....	0.47	0.31	.....	.....
	WHITE CLOVER.							
A 221	..... The Albert Dickinson Seed Co., Chicago, Ill., ...	Stichter Hardware Co., Reading, ...	92.04	91.9	6.14	1.82	.....	.....
A 255	..... Walter S. Schell, Harrisburg, Pa., ...	Walter S. Schell, Harrisburg, ...	97.91	.....	1.15	0.94	.....	.....
A 274	..... Scobie & Parker Co., Pittsburgb, Pa., ...	Scobie & Parker Co., Pittsburgh, ...	90.92	.....	8.11	0.97	.....	.....
A 304	Special, The I. W. Scott Co., Pittsburgh, Pa., ...	The I. W. Scott Co., Pittsburgh, ...	97.76	.....	1.46	0.78	.....	.....
A 350	Prime, The Stanford Seed Co., Buffalo, N. Y., ...	L. A. Fischer & Co., Bradford, ...	91.72	.....	6.95	1.33	.....	.....
		Average, ...	94.07	.....	4.76	1.17		
	RED TOP GRASS (Hulled).							
A 314	..... The Albert Dickinson Seed Co., Chicago, Ill., ...	The Loucks Hardware Co., Scottdale, ...	95.45	.....	1.34	3.20	.....	.....
A 322	Fancy, Jacot & Mullen, New York, N. Y., ...	Stichter Hardware Co., Reading, ...	88.82	91.32	9.46	1.72	.....	.....
A 292	Fancy Recleaned, The I. W. Scott Co., Pittsburgh, Pa., ...	The I. W. Scott Co., Pittsburgh, ...	91.02	.....	1.64	7.34	.....	.....
A 351	..... The Stanford Seed Co., Buffalo, N. Y., ...	L. A. Fischer & Co., Bradford, ...	90.42	.....	1.68	7.90	.....	.....
A 208	..... Unknown, ...	A. M. Weltmer's Sons, Lebanon, ...	96.37	.....	0.38	3.25	.....	.....
		Average, ...	92.42	.....	2.90	4.68		
	CANADIAN BLUE GRASS.							
A 257	..... Whitney-Eckstein, Seed Co., Buffalo, N. Y., ...	C. H. Miller Hardware Co., Huntingdon, ..	88.06	.....	1.72	10.22	.....	1-18,000
	ORCHARD GRASS.							
A 312	..... Illinois Seed Co., Chicago, Ill., ...	The Loucks Hardware Co., Scottdale, ...	79.78	.....	0.13	20.09	.....	.....
A 276	..... Scobie & Parker Co., Pittsburgh, Pa., ...	Scobie & Parker Co., Pittsburgh, ...	79.07	.....	2.60	18.33	.....	.....
A 293	Special, The I. W. Scott Co., Pittsburgh, Pa., ...	The I. W. Scott Co., Pittsburgh, ...	81.27	.....	0.69	18.04	.....	.....

TABLE II—RESULTS OF TESTS ON SAMPLES COLLECTED IN 1915—Concluded.

Analyst's number.	Name of Seed and Name and Address of Grower or Seedsman.	Name and Address of Dealer.	Pure Seed.		Foreign seed.	Inert matter.	Seeds of dodder.	Seeds of Canada thistle.
			Found.	Guaranteed.				
			Per ct.	Per ct.	Per ct.	Per ct.	Per ct	Per ct.
A 319	..... The Stanford Seed Co., Buffalo N. Y., ...	King Brothers, Uniontown, ...	90.16	.....	1.88	7.96	.....	.....
A 209	..... Unknown, ...	A. M. Weltmer's Sons, Lebanon, ...	79.84	.....	10.05	10.11	.....	.....
		Average, ...	82.02	.....	3.07	14.91		
	KENTUCKY BLUE GRASS.							
A 224	..... The Albert Dickinson Seed Co., Chicago, Ill., ...	Stichter Hardware Co., Reading, ...	79.22	84.0	0.49	20.29	.....	.....
A 275	..... Scobie & Parker Co., Pittsburgh, Pa., ...	Scobie & Parker Co., Pittsburgh, ...	74.43	.....	1.59	23.98	.....	.....
A 291	Fancy, The I. W. Scott Co., Pittsburgh, Pa., ...	The I. W. Scott Co., Pittsburgh, ...	85.46	.....	0.17	14.37	.....	.....
A 346	Fancy, The Stanford Seed Co., Buffalo, N. Y., ...	L. A. Fischer & Co., Bradford, ...	76.19	.....	0.58	23.23	.....	.....
A 258	..... Whitney-Eckstein Seed Co., Buffalo, N. Y., ...	C. H. Miller Hardware Co., Huntingdon,..	80.87	.....	0.88	18.25	.....	.....
A 313	..... Unknown, ...	The Loucks Hardware Co., Scottdale, ...	60.67	.....	25.93	13.40	.....	1–128000
		Average, ...	76.14	.....	4.94	18.92		

TABLE III—AVERAGE PURITY OF OFFICIAL SAMPLES.

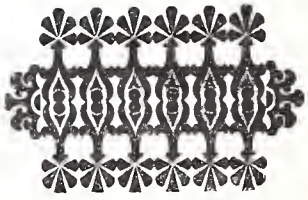
Name of Seed.	Number of samples.	Standard of purity.	Pure seed.	Foreign seed.	Inert matter.
		Per ct.	Per ct.	Per ct.	Per ct.
Red clover,	74	97	98.67	0.89	0.44
Crimson clover,	2	97	98.18	1.32	0.50
Alfalfa,	22	97	99.11	0.67	0.22
Timothy-grass,	42	97	99.14	0.46	0.40
Barley,	2	97	98.70	1.20	0.10
Spelt,	1	97	99.49	0.47	0.04
Wheat,	1	97	99.55	0.23	0.22
Oats,	7	97	98.58	1.05	0.37
Rye,	1	97	98.98	1.00	0.02
Alsike clover,	37	95	97.04	2.25	0.71
Perennial rye-grass,	1	95	95.35	1.91	2.74
German millet,	5	95	99.16	0.51	0.33
Hungarian millet,	3	95	98.48	1.31	0.21
Common millet,	1	.....	99.22	0.47	0.31
White clover,	5	90	94.07	4.76	1.17
Redtop grass (hulled),	6	85	92.42	2.90	4.68
Canadian blue-grass,	1	75	88.06	1.72	10.22
Orchard grass,	5	75	82.02	3.07	14.91
Kentucky blue-grass,	6	75	76.14	4.94	18.92
Total,	221	.....	.....	.....	.....

TABLE IV—SHOWING OCCURRENCE OF FOREIGN SEEDS IN 221 OFFICIAL SAMPLES.

Number of Samples Examined.		37	22	2	1	1	2	5	3	6	7	6	74	1	1	5	42	1	5	1
Names of		Alsike clover.	Alfalfa.	Barley.	Canada blue grass.	Common millet.	Crimson clover.	German millet.	Hungarian millet.	Kentucky blue grass.	Oats.	Orchard grass.	Red clover.	Rye.	Rye grass (perennial)	Red top.	Timothy.	Wheat.	White clover.	Spelt.
Foreign Seeds.		Number of Time Occurring.																		
Scientific Name.	Common Name.																			
Acalypha virginica	Three-seeded mercury,	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....
Achillea millefolium,	Yarrow,	....	1	....	....	....	....	....	....	....	....	....	....	....	....	5	....	....	....	....
Agrostis alba,	Redtop,	5	....	....	....	....	....	1	....	....	....	1	2	....	....	....	17	....	....	....
Alopecurus geniculatus,	Marsh foxtail,	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....
Alsine media,	Chickweed,	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....
Amaranthus blitoides,	Spreading amaranth,	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Amaranthus graecizans,	Tumbling amaranth,	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	....	....	....
Amaranthus retroflexus,	Rough pigweed,	1	....	....	....	....	....	....	1	....	....	....	4	....	....	....	....	....	....	....
Ambrosia artemisiaefolia,	Ragweed,	....	....	....	....	....	....	1	2	....	....	....	22	....	....	....	....	....	....	....
Anthemis arvensis,	Field camomile,	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....
Anthemis cotula,	Mayweed,	2	....	....	1	....	....	....	....	....	....	....	1	....	....	....	1	....	....	....
Anthyllis vulneraria,	Kidney vetch,	....	....	....	....	....	1	....	....	....	....	....	1	....	....	....	....	....	....	....
Apera spica-venti,	Silky bent grass,	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....
Arenaria serpyllifolia,	Thyme leaved sandwort,	....	....	....	....	....	....	....	....	2	....	1	....	....	....	1	....	....	....	....
Atriplex sp.,	Salthush,	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Avena fatua,	Wild oats,	....	....	....	....	....	....	....	....	....	3	....	....	....	....	....	....	....	....	....
Avena sativa,	Oats,	....	....	2	....	....	....	....	....	....	....	....	....	1	....	....	....	1	....	1
Barbarea barbarea,	Winter cress,	4	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....
Brassica sp.,	Mustard,	1	2	....	....	....	1	....	....	....	3	....	1	....	....	....	....	....	....	....
Bromus secalinus,	Chess,	....	....	....	....	....	....	....	....	....	....	2	1	....	1	....	....	....	....	....
Bursa bursa-pastoris,	Shepherd's purse,	1	....	....	....	....	....	....	....	2	....	1	2	....	....	....	3	....	1	....

Camelina sativa,	Large seeded false flax,	2	....	....	....	....	2	....	....	....	....	....	1	....	....	....	....	....	....	....	....
Carduus arvensis,	Canada thistle,	6	....	....	....	....	....	....	1	1	....	....	1	....	....	....	....	....	....	....	....
Carduus discolor,	Field thistle,	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....
Carex sp.,	Sedge,	....	....	....	....	....	....	....	....	5	....	1	1	....	....	1	6	....	....	....	....
Caucalis nodosa,	Knotted hedge-parsley,	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Centaurea cyanus,	Blue bottle,	....	....	....	....	....	1	....	....	....	....	....	1	....	....	2	....	....	....	....	....
Centaurea picris,		....	4	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Cerastium vulgatum,	Mouse-ear chickweed,	9	....	....	1	....	....	....	....	5	....	1	....	....	....	3	1	....	2	....	....
Chaetochloa glauca,	Yellow foxtail,	....	....	1	....	....	....	4	2	....	1	....	7	....	....	....	....	....	....	....	....
Chaetochloa italica,	Millet,	....	1	....	....	....	....	....	....	....	1	....	17	....	....	....	....	....	....	....	....
Chaetochla viridis,	Green foxtail,	4	7	....	....	1	....	4	3	....	....	....	51	....	....	....	....	....	1	....	....
Chenopodium album,	Lamb's-quarters,	1	5	....	....	1	....	2	2	....	....	....	25	....	....	....	9	....	3	....	....
Chenopodium fremontil,	Freeman's goose-foot,	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Chrysanthemum leucanthemum,	Ox-eye daisy,	1	....	....	....	....	....	....	....	....	....	1	....	....	....	....	1	....	....	....	....
Cichorium intybus,	Chicory,	....	2	....	....	....	....	....	....	....	....	....	4	....	....	....	....	....	....	....	....
Claviceps purpurea,	Ergot,	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	6	....	....	....	....
Conium maculatum,	Poison hemlock,	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....
Conringia orientalis,	Hare's-ear mustard,	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....
Cuscuta sp.,	Dodder,	....	2	....	....	....	....	....	....	....	....	....	3	....	....	....	....	....	....	....	....
Dactylis glomerata,	Orchard grass,	....	....	....	....	....	2	....	....	....	....	....	1	....	....	....	....	....	....	....	....
Daucus carota,	Wild carrot,	....	....	....	....	....	....	....	....	....	....	....	11	....	....	....	....	....	....	....	....
Echinochloa crus-galli,	Barnyard grass,	....	2	1	....	....	....	....	1	....	1	....	6	....	....	....	....	....	....	....	....
Epilobium paniculatum,	Panicled willow herb,	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....
Eragrostis major,	Strong-scented eragrostis,	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....
Erodium cicutarium,	Alfilaria,	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....
Erysimum aspermum,	Orange mustard,	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....
Euphorbia nutans,	Spurge,	....	....	....	....	....	....	1	....	....	....	....	7	....	....	....	....	....	....	....	....
Festuca ovina duriuscula,	Sheep's fescue-grass,	....	1	....	....	....	....	....	....	....	....	1	....	....	....	1	....	....	....	....	....
Geranium dissectum,	Cut-leaved crane's bill,	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....
Geranium pusillum,	Small-flowered crane's bill,	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....
Gramineae sp.,	Grass species,	....	....	....	....	....	....	....	....	1	....	1	....	....	1	....	....	....	....	....	....
Helianthus annuus,	Common Sunflower,	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Holcus lanatus,	Velvet grass,	....	....	....	....	....	....	....	....	....	1	2	....	....	1	....	....	....	1	....	1
Hordeum vulgare,	Barley,	....	....	....	....	....	....	....	....	....	4	....	....	....	....	....	....	1	....	....	....
Juncus tenuis,	Slender rush,	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....
Koellia sp.,	Mountain Mint sp.,	....	....	....	....	....	....	....	....	....	....	....	....	....	....	4	....	....	....	....	....
Lepidium apetalum,	Peppergrass,	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....
Lepidium draba,	Hoary cress,	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Lepidium virginicum,	Peppergrass,	1	....	....	....	....	....	....	....	1	....	1	....	....	....	1	8	....	....	....	....
Lolium perenne,	Perennial rye grass,	....	1	....	....	....	....	1	....	....	....	2	3	....	....	....	....	....	....	....	....
Lotus corniculatus,	Bird's-foot trefoil,	....	....	....	....	....	....	....	....	....	....	....	8	....	....	....	....	....	....	....	....
Medicago lupulina,	Trefoil,	19	2	....	....	....	2	1	....	....	1	1	8	....	....	....	....	....	3	....	....
Medicago sativa,	Alfalfa,	5	....	....	....	....	1	1	....	....	....	....	27	....	....	....	1	....	....	....	....
Melilotus alba,	Sweet clover,	1	5	....	....	....	....	....	....	....	....	....	4	....	....	....	....	....	1	1	1
Nepeta cataria,	Catmint,	....	....	....	....	....	....	....	....	....	....	....	3	....	....	....	....	....	1	....	....
Onagra biennis,	Evening primrose,	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	8	....	....	....	....
Panicum capillare,	Witch grass,	2	....	....	....	....	....	....	....	....	....	....	4	....	....	....	....	....	1	....	....
Panicum sp.,		....	....	....	....	1	....	1	....	....	....	....	1	....	....	....	2	....	....	....	....
Papaver sp.,	Poppy sp.,	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Paspalum setaceum,	Slender paspalum,	....	1	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....
Phalaris canariensis,	Canary seed,	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....
Phleum pratense,	Timothy,	34	5	....	1	....	2	1	1	....	....	2	55	....	....	5	....	....	5	....	....
Picris echioides,	Ox-tongue,	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....

TABLE IV—SHOWING OCCURENCE OF FOREIGN SEEDS IN 221 OFFICIAL SAMPLES—Concluded.

Number of Samples Examined.		37	22	2	1	1	2	5	3	6	7	6	74	1	1	5	42	1	5	1
Names of		Alsike clover.	Alfalfa.	Barley.	Canada blue grass.	Common millet.	Crimson clover.	German millet.	Hungarian millet.	Kentucky blue grass.	Oats.	Orchard grass.	Red clover.	Rye.	Rye grass (perennial)	Red top.	Timothy.	Wheat.	White clover.	Spelt.
Foreign Seeds.		Number of Time Occurring.																		
Scientific Name.	Common Name.																			
Plantago aristata,	Bracted plantain,	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....
Plantago lanceolata,	Buckhorn plantain,	6	2	....	....	....	....	....	....	1	....	2	43	....	....	....	2	....	....	....
Plantago major,	Plantain,	2	....	....	....	....	....	....	....	....	....	....	2	....	....	....	1	....	3	....
Plantago rugelii,	Rugel's plantain,	5	1	....	....	....	....	....	....	....	....	....	47	....	....	1	16	....	4	....
Poa sp.,	Bluegrass,	10	....	....	....	....	....	....	....	....	....	3	3	....	....	1	21	....	2	....
Polygonum aviculare,	Knotweed,	....	1	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
Polygonum convolvulus,	Black bindweed,	....	1	1	....	....	....	....	....	....	4	....	3	1	....	....	....	1	....	....
Polygonum hydropiper,	Smartweed,	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....
Polygonum lapathifolium,	Pale smartweed,	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Polygonum persicaria,	Lady's thumb,	....	....	....	....	....	....	3	3	....	....	....	12	....	....	....	....	....	....	....
Potentilla sp.,	Five-finger,	6	....	....	1	....	....	....	....	....	....	....	2	....	....	....	15	....	2	....
Prunella vulgaris,	Heal-all,	3	....	....	....	....	....	....	....	....	....	....	10	....	....	....	....	....	....	....
Rudbeckia hirta,	Brown-eyed Susan,	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	6	....	....	....
Rumex acetosella,	Sorrel,	24	1	....	....	....	1	....	....	2	....	1	22	....	....	1	7	....	4	....
Rumex crispus,	Curled dock,	10	2	....	....	....	1	....	....	....	....	4	41	....	....	....	1	....	....	....
Salvia Sclarea,	See-bright,	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....
Sida spinosa,	Spiny sida,	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....
Silene dichotoma,	Forked catch-fly,	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....
Silene noctiflora,	Night-flowering catchfly,	13	....	....	....	....	1	....	....	....	....	....	10	....	....	....	1	....	4	....
Solanum car,	Sand-brier,	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....
Solanum nigrum,	Deadly nightshade,	....	1	....	....	....	....	....	....	....	....	....	5	....	....	....	....	....	....	....

Syntherisma linearis,	Small crab grass,	....	....	....	....	....	....	....	....	....	....	....	4	....	....	....	....	....	....	....
Syntherisma sanguinalis,	Crab-grass,	....	....	....	....	....	....	3	....	....	....	....	8	....	....	....	....	....	1	....
Trifolium hybridum,	Alsike clover,	....	3	....	1	....	....	1	....	....	....	1	52	....	....	....	27	....	5	....
Trifolium incarnatum,	Crimson clover,	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....
Trifolium pratense,	Red clover,	29	3	1	....	....	1	1	....	....	....	1	....	....	....	....	15	....	5	....
Trifolium procumbens,	Low hop clover,	1	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....
Trifolium repens,	White clover,	33	2	....	1	....	1	....	....	....	....	1	25	....	....	....	23	....	....	....
Triticum aestivium,	Wheat,	....	....	1	....	....	....	....	....	....	5	....	....	1	....	....	....	....	....	....
Valerianella sp.,	Corn salad sp.,	....	....	....	....	....	....	....	....	....	....	1	....	....	....	1	....	1	....	....
Verbena sp.,	Vervain sp.,	1	1	....	....	....	....	....	....	....	....	....	2	....	....	....	7	....	....	....
Veronica arvensis,	Corn speedwell,	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....
Vicia sp.,	Vetch sp.,	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....